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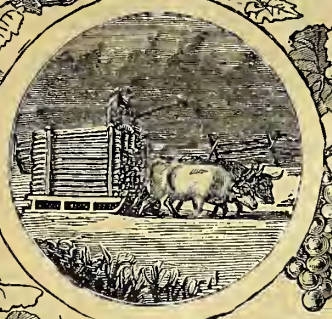

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FOR THE FARM, GARDEN & HOUSEHOLD.

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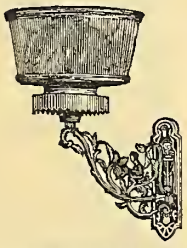

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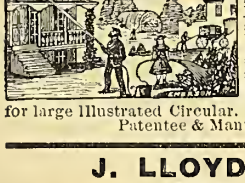


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# AMERICAN AGRICULTURIST

FOR THE

# Farm, Garden, and Household.

"AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN."—WASHINGTON.

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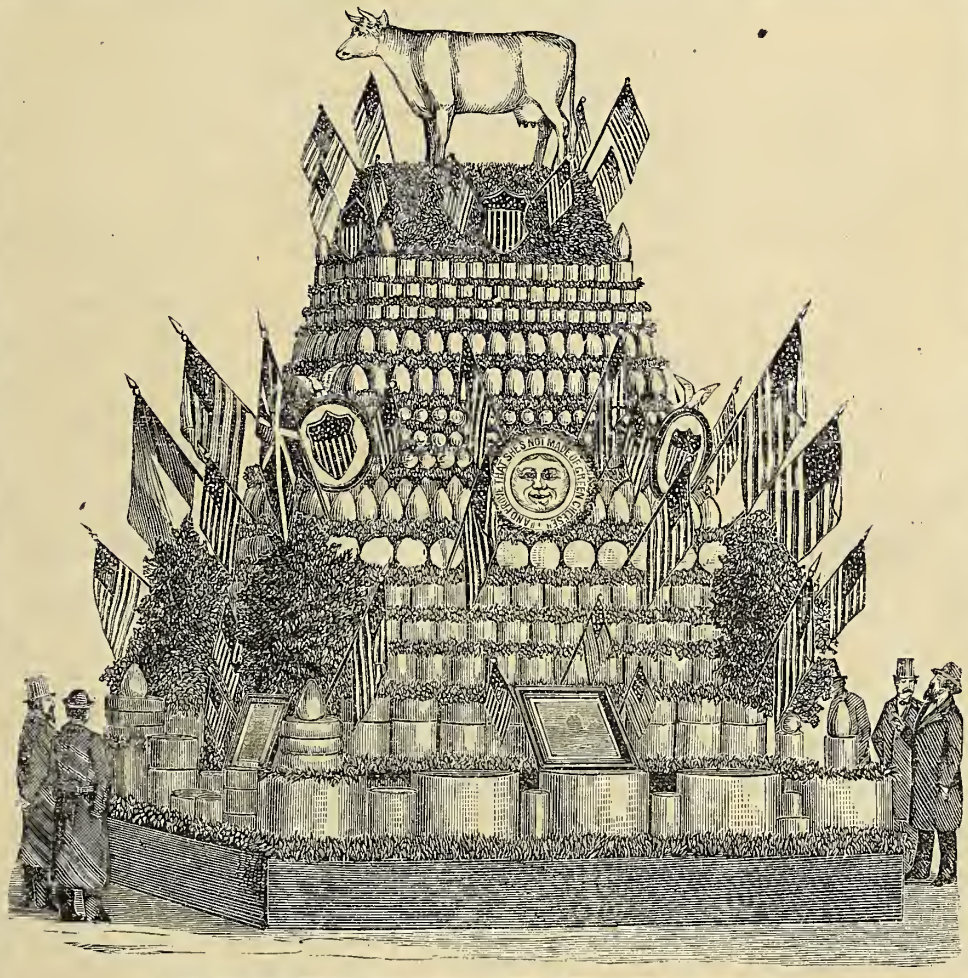
## A Remarkable Pyramid of Cheese.

At the recent dairy fair in New York, described on page 7, the most conspicuous objects were two immense pyramids of cheese, one on either side of the hall. That on the right contained ten tons of Vermont and Western cheese; that on the left was still larger; it was decorated with flags, ivy, evergreens, and upon its summit a fine Jersey cow,—dead of course, but handsomely mounted and quite life-like. The artist and engravers have made an accurate representation of it, in the picture on this page. This pyramid was constructed and exhibited by the Messrs. H. K. & F. B. Thurber, of New York. It comprised many varieties of home and foreign make. The lower course was a row of great cheeses, each weighing about 800 lbs., and ornamented with cards, bearing appropriate inscriptions, among which were: "And carry these ten cheeses, with the captains of their thousand, and look how their brethren fare." 1 *Samuel, xvii.*, 18; "A last course at dinner without cheese, is like a pretty woman with only one eye."—*Brillat Savarin.* Above these were arranged smaller American, and the peculiar shaped fancy and foreign cheeses. On one side was a Gruyere cheese, with the inscription from Hudibras: "And prove that she is not made of green cheese," and a jolly face representing "the man in the moon." The Messrs. Thurber contributed largely to the interest and success of the fair. At one side of the pyramid was a table, containing a large variety of foreign cheeses, including oddly shaped ones from Italy, made of goats' milk, and put up in bladders: the famous English Stilton and Cheddar varieties, Irish cheese, French and Swiss cheese, which the firm procured abroad and brought over especially for this exhibition.



A PYRAMID OF CHEESE, EXHIBITED AT THE INTERNATIONAL DAIRY FAIR.

## Pleasant Figures Continued.

### Large Exports.—Encouraging Prospects.

Never before in the past 25 years have we been able to present to our readers such a continuous succession of gratifying figures. These figures show that, as a nation, we are buying fewer foreign articles, are economizing in expenses, and at the same time are sending abroad a largely increasing amount of the productions of our own fields and manufactories. We are producing and selling to others far more than we are buying, and by so much bettering our financial condition. It matters not whether we are accumulating the difference, or using it in cancelling an indebtedness to other nations previously incurred. Last month we gave a variety of general figures, and brought the statistics down to Oct. 1. We have now the official reports to Nov. 1. These show that during October alone we exported products to the amount of $65,135,000, exclusive of specie, while we imported only $37,391,875; or, including specie, the exports were $66,530,736, and the imports $40,884,079, a balance in our favor of almost $20,000,000 for a single month, averaging about $740,000 for each business day. For the ten months, from Jan. 1 to Nov. 1, we exported, exclusive of specie, in round numbers, 600 million dollars worth ($599,073,799), and imported $362,003,787 worth, a balance in our favor of $237,070,012, a *gain* for each business day of $911,700, that is nearly a million dollars a day! And this, too, with the low prices of breadstuffs and other commodities sent abroad. The large foreign demand continues, and for the reasons explained last month, is likely to do so, until our large surplus is mainly exhausted, and a good opening left for the grain crops of 1879.

The prospects are encouraging for farmers, and, indeed, for all others. An abundance of food at low prices favorably affects all classes, and will greatly aid recuperation of business generally. The crops of 1878 were the largest, in the aggregate, ever produced. We can not reasonably expect a repetition of these another year, but what may be lacking in quantity will probably be made up in better prices. Let our farmers therefore lay out large plans for the year, during this leisure month. For the various spring crops to be put in, plan to do it well—to get the largest yield possible from the smallest area. The advice last given above, needs to be taken to heart more and more by our cultivators. Ten bushels of wheat per acre may just about pay expenses, if it does even that, while 20 to 30 bushels may pay handsomely. Ten acres yielding 200 bushels, requires only about half as much plowing, harrowing, seed, and reaping over, as twenty acres producing only 200 bushels. The same reckoning applies to corn, and to every other crop, and to farm animals as well. Some animals scarcely yield flesh, work, or dairy products enough to pay their keeping. Others give double return from the same food. The winter months afford time and leisure to think, to read, and study books and papers on farming, to talk with others, and thus get every possible hint upon the question of what are the most profitable animals—*how* to increase the yield per acre—how to prepare the ground, and what varieties of seed to plant and sow, not only to yield well, but to render one as much as possible independent of the weather. The best seed, and a few drains, or a few open dead-furrows even, may save a crop from the disastrous effects of a wet season, should it come, and go far to decide the question of a profitable or an unprofitable year's work. 'Squire Bunker says the best manure is a liberal application of brains.

**Medium Sized Fowls the Best.**—I. K. Felch says; Many of the favorite breeds of fowls have suffered from the effect of breeding for large size. From 6 to 8 pound hens, and 9 to 11 pound cocks, for Light Brahmas; and 5 to 7 pound hens, and 7 to 9 pound cocks, for Plymouth Rocks, are the weights at which the greatest productiveness will be found, and to force the fowls beyond those figures, will result in a sacrifice of their laying qualities. The smaller breeds, such as Leghorns, Games and Hamburgs, will stand forcing, without deterioration, to a greater proportionate degree than those first mentioned. The rule should be, guard against excessive weight in the Asiatics, and loss of weight in small breeds, if great productiveness be the aim.

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## Calendar for January, 1879.

| Day of Month. | Day of Week. | Boston, N. England, N. York State, Michigan, Wisconsin, Iowa, and Oregon. Sun rises. | Sun sets. | Mo'n sets. | N. Y. City, Ct., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois. Sun rises. | Sun sets. | Mo'n sets. | Washington, Maryland, Virginia, Kentucky, Missouri, and California. Sun rises. | Sun sets. | Mo'n sets. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | H. M | H. M | H. M. | H. M | H. M | H. M. | H. M | H. M | H. M. |
| 1 | W | 7 30 | 4 38 | 0 53 | 7 25 | 4 44 | 0 55 | 7 19 | 4 40 | 0 53 |
| 2 | T | 7 30 | 4 39 | 2 0 | 7 25 | 4 44 | 1 56 | 7 19 | 4 50 | 1 54 |
| 3 | F | 7 30 | 4 40 | 3 3 | 7 25 | 4 45 | 2 58 | 7 19 | 4 51 | 2 54 |
| 4 | S | 7 30 | 4 41 | 4 7 | 7 25 | 4 46 | 4 1 | 7 19 | 4 51 | 3 55 |
| 5 | S | 7 30 | 4 42 | 5 9 | 7 25 | 4 47 | 5 0 | 7 19 | 4 52 | 4 56 |
| 6 | M | 7 30 | 4 43 | 6 8 | 7 25 | 4 48 | 6 1 | 7 19 | 4 53 | 5 54 |
| 7 | T | 7 30 | 4 44 | rises | 7 25 | 4 49 | rises | 7 19 | 4 54 | rises |
| 8 | W | 7 29 | 4 45 | 5 2 | 7 24 | 4 50 | 5 8 | 7 19 | 4 55 | 5 14 |
| 9 | T | 7 29 | 4 46 | 6 15 | 7 24 | 4 51 | 6 20 | 7 19 | 4 56 | 6 25 |
| 10 | F | 7 29 | 4 47 | 7 29 | 7 24 | 4 52 | 7 32 | 7 19 | 4 57 | 7 36 |
| 11 | S | 7 29 | 4 48 | 8 43 | 7 24 | 4 53 | 8 45 | 7 19 | 4 58 | 8 47 |
| 12 | S | 7 28 | 4 49 | 9 56 | 7 23 | 4 54 | 9 57 | 7 18 | 4 59 | 9 57 |
| 13 | M | 7 28 | 4 50 | 11 10 | 7 23 | 4 55 | 11 9 | 7 18 | 5 0 | 11 8 |
| 14 | T | 7 28 | 4 52 | morn | 7 23 | 4 56 | morn | 7 18 | 5 1 | morn |
| 15 | W | 7 27 | 4 53 | 0 25 | 7 22 | 4 57 | 0 22 | 7 17 | 5 2 | 0 20 |
| 16 | T | 7 27 | 4 54 | 1 41 | 7 22 | 4 59 | 1 37 | 7 17 | 5 3 | 1 33 |
| 17 | F | 7 26 | 4 55 | 2 56 | 7 21 | 5 0 | 2 51 | 7 17 | 5 4 | 2 46 |
| 18 | S | 7 25 | 4 56 | 4 9 | 7 21 | 5 1 | 4 3 | 7 16 | 5 6 | 3 57 |
| 19 | S | 7 25 | 4 58 | 5 15 | 7 20 | 5 2 | 5 8 | 7 16 | 5 7 | 5 1 |
| 20 | M | 7 24 | 4 59 | 6 8 | 7 20 | 5 3 | 6 2 | 7 15 | 5 8 | 5 56 |
| 21 | T | 7 23 | 5 0 | sets | 7 19 | 5 4 | sets | 7 15 | 5 19 | sets |
| 22 | W | 7 23 | 5 1 | 5 23 | 7 19 | 5 6 | 5 27 | 7 14 | 5 10 | 5 32 |
| 23 | T | 7 22 | 5 3 | 6 31 | 7 18 | 5 7 | 6 35 | 7 13 | 5 11 | 6 38 |
| 24 | F | 7 21 | 5 4 | 7 37 | 7 17 | 5 8 | 7 39 | 7 13 | 5 12 | 7 42 |
| 25 | S | 7 20 | 5 5 | 8 41 | 7 16 | 5 9 | 8 42 | 7 12 | 5 13 | 8 43 |
| 26 | S | 7 20 | 5 6 | 9 43 | 7 15 | 5 10 | 9 43 | 7 11 | 5 15 | 9 42 |
| 27 | M | 7 19 | 5 8 | 10 44 | 7 15 | 5 12 | 10 43 | 7 11 | 5 16 | 10 41 |
| 28 | T | 7 18 | 5 9 | 11 46 | 7 14 | 5 13 | 11 43 | 7 10 | 5 17 | 11 40 |
| 29 | W | 7 17 | 5 10 | morn | 7 13 | 5 14 | morn | 7 9 | 5 18 | morn |
| 30 | T | 7 16 | 5 11 | 0 48 | 7 12 | 5 15 | 0 44 | 7 8 | 5 19 | 0 40 |
| 31 | F | 7 15 | 5 13 | 1 51 | 7 11 | 5 17 | 1 46 | 7 7 | 5 20 | 1 41 |

PHASES OF THE MOON.

| MOON. | BOSTON. | N. YORK. | WASH'N. | CHA'STON | CHICAGO. |
|---|---|---|---|---|---|
| | D. H. M. | H. M. | H. M. | H. M. | H. M. |
| Full M'n | 8 7 4 mo. | 6 52 mo. | 6 40 mo | 6 28 mo. | 5 58 mo. |
| 3d Quart. | 15 6 18 mo. | 6 6 mo. | 5 54 mo | 5 42 mo. | 5 12 mo. |
| New M'n | 22 7 7 mo. | 6 55 mo. | 6 43 mo | 6 31 mo. | 6 1 mo. |
| 1st Quart | 30 7 0 mo. | 6 48 mo. | 6 36 mo | 6 24 mo. | 5 54 mo. |


# AMERICAN AGRICULTURIST.

NEW YORK, JANUARY, 1879.


## Hints for the Work of the Month.

[*The Hints and Suggestions in these columns are never copied from previous years, but are freshly prepared for every month, from the latest experience and observations, by practical men in each department.*

*Keep Accounts.*—Make a beginning now. For sundry directions, see articles in last month (page 466) and in the present number (page 19).

*Keep a Diary or Daily Record.*—This is a useful and interesting work, and the time spent will be well repaid, in its value for future reference.

*Insurance.*—See that a sufficient insurance is placed on the farm buildings and contents. This is a duty every man owes to himself, his family, and to his creditors if he has any.

*Keep Out the Cold.*—The old fashioned method of banking up the house, is not the best one. It is better to have double windows in the cellar, and the cellar wall properly pointed. If this has not been done, it may yet be, on a warm day.

*Take Care of the Ashes.*—Many fires occur through careless disposal of ashes. The ash house should be at a safe distance from any other buildings. A safe way is, to keep the ashes in an iron can or holder, until cool, and then throw them into the box or receptacle provided for them. Wood ashes are too valuable to waste, and coal ashes make an excellent absorbent in the earth-closet, and are very good for making hard foot paths.

*A Supply of Fuel* sufficient for some weeks' use, should always be kept at hand under cover. Descriptions of wood sheds and coal bins, have been frequently given in the *American Agriculturist*.

*The Barns* should be kept clean and tidy. The lot of useless rubbish so apt to gather in buildings, should be disposed of at least once a year. Whatever is useful should be stored and cared for.

*Small Matters* make up the sum of our comfort, and constant attention to them will not only save trouble, but will confirm a habit of looking after more important things.

*The Daily Work* should be done according to system. This will lighten labor and save time; things will be done in order, and less be forgotten.

*The Cows* should be cleaned before morning milking, then fed—the feed having been prepared, as far as possible, the previous afternoon. This, with the care of the horses, and a light feed to the small stock, will occupy the time before breakfast.

*After Breakfast* the small stock should be further looked to, fed and watered. The same hours as nearly as possible, should be observed each day for these matters. Animals are exacting as regards time, and are uncasy under irregularity. After the small stock are cared for, horses and cows should be watered, and the latter turned into the yard.

*In Stormy Weather* the stock are better under cover than exposed to the wintry blasts. It is a mistake to suppose that exposure makes them hardy: on the contrary they are weakened by it.

*Fodder Racks.*—The wasteful practice of throwing hay and fodder upon the ground to be fought over and trampled upon, is far too frequent. A cheap foddering rack, covered and protected from the weather, should be provided in every yard. See back numbers of *American Agriculturist* for plans.

*Protection for Stock* should be provided even in the Southern States, where the winters are relatively mild. Dry snow is not so chilling as a cold rain; damp winds, even some degrees above the freezing point, often prove disastrous. A shed open to the south, however rough, will answer as a shelter.

*Work for the Teams.*—Work should be found for the horses and cattle. They are all the better for exercise, and by looking around, useful work may always be found. If nothing better offers, make a holiday, and take the children for a drive.

*Milking Cows* should be kept dry and clean in the stalls, and extra feed be given to dairy cows that fall off in their milk. A few quarts of ground oats, linseed-oil cake-meal, or bran, stirred in the water in the drinking troughs, will increase the milk-flow.

*Calves.*—Warmth and cleanliness will keep the young calves in a good condition with light feeding, while, without these, heavy feeding will do more harm than good. It is useless to over-feed young animals in an effort to make up for the want of care.

*Ewes.*—Sometimes a few lambs will come in January. By good care these may be made very profitable. A chilled lamb may be restored by a warm bath and a teaspoonful of hot ginger tea. The lamb should be thoroughly dried and wrapped around with a strip of woollen cloth. The ewes should be well nursed with warm gruel for a few days. Provide warm pens for early lambing ewes.

*Pens and Yards.*—If plentiful litter is provided, the pens and yards need not necessarily be cleaned out often; but enough litter should be used to keep a dry bed and to prevent much heat in the manure. If there is any smell apparent, a light dusting of ground plaster will remove it.

*A Barrel of Plaster* should be kept in a handy place in every stable and manure cellar. Where this is used constantly, there will be freedom from the usual strong odor of stables and fermenting manure, and a saving of valuable material which would otherwise escape.

*A Curry-Comb or Card and Brush* freely used, will help to keep the cows, calves, and other cattle, as well as horses, in good health and comfort. If there is doubt about this, a short trial will convince any one that the practice is a profitable one.

*Swine.*—Pork is lower than for many years past. There have been about 10,000,000 pigs marketed within twelve months. That this vast number should have been disposed of at any price is an extraordinary fact. It proves that the market is practically unlimited, if the price is low enough. The aim must be to produce pork as cheaply as possible. The way to do this, is to keep only the best, and have pigs heavy enough for pork, without wintering over. A pig of the best breeds may be made to weigh 300 lbs. within a year. Only such pigs will pay at present, and poor stock won't pay at all.

*A clear Head* and good judgment are needed for success in business. Just now farmers need to be more thoughtful and careful than ever before. If times are bad, it is the greater reason why we should be liberal in getting all possible helps to make them better. A good agricul-

tural journal may be worth hundreds of dollars every year to any farmer, if he will only study it carefully. Few journals are prepared with more thoughtful care than the *American Agriculturist*. Its editors and writers are chiefly practical cultivators, and know what other cultivators need, and share their troubles and their successes. At the beginning of a new year it will be worth considering if the advice and information received during twelve months is not worth many times the price paid for it. Some of us, who mix much with other farmers, are glad to know that our work is appreciated and useful, and we wish to enlarge the sphere of our usefulness, by inducing every reader of the *American Agriculturist* to subscribe first himself, and ask his neighbors to benefit themselves in the same way.

## Notes for the Orchard and Garden.

As the first month in the year is one in which the majority of our readers are prevented from working in their orchards and gardens, our Notes at the beginning of the year have, for several seasons, discussed general matters relating to their pursuits. Believing that one can make no better investment of his money and time than in procuring and studying the experience of others, as recorded in books, we last January devoted these Notes to a rather full review of the literature of the orchard and garden, and we would refer the reader who would know of the best sources of information to an account of the leading works there given.

"*Farming does not Pay*," is a very common assertion in the older States, and the remedy most frequently suggested is for the farmer to "go West." —"Times have changed," is mournfully said by many a farmer, "the western corn, wheat, and other grains are brought here and sold for less than I can raise them."—It is very true that "times have changed," and the trouble with those who thus complain is, that they do not change with them. We would not discourage—but on the contrary would aid in all proper ways those who would make a new home in a new country. But *all* can not go West or South. Some, many, must, for one reason or another, stay in the older States where circumstances have placed them, and for the encouragement of such we would say that, in our opinion, the opportunities to the intelligent and industrious cultivator of the soil are quite as favorable there as they are anywhere. But success will not attend the farmer with 30 or 50 acres who undertakes to compete with the western farmer with hundreds of acres in raising corn, wheat, and other grains. Farming in the older States, at least in the more thickly settled portions of them, is rapidly becoming what, for the want of a better name, we call *Market Farming*, which is intermediate between market-gardening proper, and the old style of farming, and in many cases it may be wise to convert the farm into a market and fruit garden, provided that the farmer can so convert himself, and learn new ways, as to make the change desirable. To explain what we mean by Market Farming: One living within moderate distance of a town where there are large stables belonging to the horse-railroads or stage lines, may find a demand for all the carrots he can raise, at a paying price; if there are factories, especially with European laborers, cabbages and "sprouts" will sell well. In such a town sweet-corn will be in demand, and the field that only gives him 25 or 30 bushels to the acre, if put into sweet-corn will bring much more money when green, and leave a valuable crop of fodder. If one has children old enough to pick them, green peas may pay. A crop of fall sown spinach will be sure to bring money early in the spring long before other crops are ready, at a time when money is needed, and be off in time to use the land for a second crop. Onions pulled, bunched and marketed when half or two-thirds grown, usually bring more to the acre than ripe onions. These are a few of many things that require no more care or skill than ordinary farm crops; but farmers neglect them merely because they have never raised them.

*Small Fruits* should not be overlooked, as these often bring better prices in small towns than in large cities, and their culture presents no difficulties that ordinary intelligence can not overcome.... Among the crops that farmers rarely cultivate for their own use or for sale is Asparagus, a plantation of which, once properly made, lasts for years and will pay a good dividend every spring.

*Small Farming, with its Small Economies*, will pay in the thickly settled portions of the older States, if the demands of the near market are properly consulted. If one is near a summer resort, where there are large hotels, his choice of crops will be different from the one whose market is a factory village. Of course our idea of market farming includes the keeping of domestic animals, cows, poultry, pigs, bees, or whatever under the circumstances will pay. This kind of farming can only be successful by

*A Close Attention to Details.*—Many will say it is "puttering business," and that they can not "bother with small matters." But a boy who goes into a store does not think half yards, ounces, and pints are details that he can not "bother" with. If one can, from a bed a few feet square, sell tomato or cabbage plants for more than he can get for a whole acre of corn—and this is no improbable case—details at once assume an importance. We do not expect any one to throw aside a system that he is familiar with, and take up one about which he knows almost nothing. But it seems to us that,

*At the Beginning of the Year*, when plans are being made, and each one naturally looks about to see where he may improve upon his methods and increase his income, it will be well, in the light of such hints as are here given, to see if some change for the better may not be made in the crops, with a more satisfactory return for the labor. The great point is to make a beginning; a start being once made in the direction of improvement, the change from old methods to new need go on only so rapidly as the new seem to be desirable and safe.

### Orchard and Nursery.

At the beginning of the year it may be well to say to new readers that the above heading does not imply that these Notes are for commercial nurserymen. They know too well that their success largely depends upon doing the right thing at the right time, and do not need to be reminded of it. Our Notes on the nursery relate to such nursery matters as the farmer and orchardist is likely to need instruction and help. We have before suggested that

*A Farm Nursery* might in some localities prove profitable, especially in places far distant from any nursery. One can buy root grafts (*i. e.*, roots with grafts already set and waxed) or trees in bud (stocks budded last summer, the buds of which are dormant, but will grow next season) of some western nurseries that make a specialty of them, at very low rates; these set in nursery rows and well cultivated for three or four years, will make excellent trees for sale or for setting out—vastly better than are likely to be furnished by any travelling "agent." Raising young nursery stock is interesting work for boys, who should learn to bud and graft. A most excellent instructor in these, and also for all

*Nursery Operations*, from raising the stocks to planting the trees, is Barry's "Fruit Garden," and though the title does not suggest it, there is no better guide for orchard management.

*In Planting an Orchard*, begin now to select and order the trees. Run no risks. Nothing is more discouraging than to cultivate trees 5 or 8 years, and when they begin to bear find they are not true to name. It is a disaster for which there is no remedy, and while to get trees direct from a nursery of reputation may cost a few dollars more in freight than to buy them from a peddler, the difference is as nothing compared with the risk of ordering from unknown and irresponsible parties. We do not recommend one nursery in preference to another. We advise those about to plant to send for catalogues to those who advertise with us, make selections, and order as early as possible.

*Varieties to Plant.*—In making selections for an orchard, the question should not be, what are the best varieties, but what are the best that can be grown in your locality. If there are any fruit-growers in the neighborhood, get their experience; if one is in a new country, where information of this kind can not be obtained, the next best is the opinion of a nurseryman of good reputation.

*For Family Use*, the orchard should contain varieties from the earliest to the latest, the greater number of trees being of good keeping kinds.

*For Market Fruit* the selection will depend upon whether the market is near at hand, or the fruit is to be shipped to a distance. One near a town will find showy early apples, which do not keep long or transport well, more profitable than later kinds.

*Young and Old Orchards* need such attention as suggested last month. Briefly, protect young trees from large animals by care of fences and gates.... Trap or shoot rabbits; smearing the trunks with blood or raw meat of any kind will keep them off. ....Tramp light snow around young trees so firm that mice cannot work beneath it....If cions have not been cut, do it now in a mild spell, label and store in saw-dust, moss, or sand, and keep in a cool place....Make channels to carry off surface water, wherever needed...Cart out manure to the orchard.

### Fruit Garden.

Under this head is placed whatever relates to the cultivation of what are generally known as the small fruits. In many cases these are cultivated in the kitchen garden, and in many more, we regret to say, they are not cultivated at all. There are so many advantages in having a compartment devoted especially to these fruits, that we advise it to be done where practicable—yet, the absence of a "fruit garden" need deter no one from growing the fruits. When we consider the small outlay required to begin with, the ease of cultivation, and how acceptable they are, we wonder that they should be regarded as a luxury anywhere.

If there is any one respect in which farmers—take the country through—do not live up to their privileges, it is in the matter of small fruits. The table of the city mechanic is better supplied with these fruits than that of many a wealthy farmer. We hope to see the time when every farmer's family shall have their fill of fruits, from the beginning of strawberries to the end of grapes.

*The Chief Reason* why small fruits are scarce on large farms, is, that the preparatory work comes in spring, when the farmer is overwhelmed with other matters. The farmer's wife, the boys, or even the girls might look after these. There is no lack of

*A Plenty of Good Guides.*—Barry's "Fruit Garden," Fuller's "Small Fruit Culturist," or Roe's "Manual of Small Fruits" are each excellent on planting and cultivation, while the catalogues of dealers set forth the claims of the varieties.

*But Small Fruits Pay*, and this aspect of the question should be considered by those who live near a market. Growers within 50 miles of New York think that their fruit must go to the city, and they send it past smaller places, where it would bring a better price, to the crowded city market, where it brings a poor one. Probably the same occurs in the neighborhood of other large cities. Cultivate the home market. Many extravagent statements have been made as to the great profits of small fruit culture, and such works as "Ten Acres Enough," have led people into disastrous speculations. It is easy to cypher from the yield of a bed, a few feet square, what would be the yield of an acre, of five, or ten acres in strawberries, and such statements have done much to discourage small fruit culture. But from our own experience and observation we have no doubt that in almost any locality near a flourishing village or town they will, take one year with another, return a very satisfactory profit.

*The Succession* in small fruits is: Strawberries, raspberries, currants, gooseberries (usually sold green), blackberries, and grapes. Of course, there is some lapping, the late varieties of one kind coming in with the early sorts of the next. Those who have had no experience in these are at loss

*How to Begin.*—If one has the money to invest, plantations may be made this spring, but many, whose means are restricted, would like to make a

beginning; such may purchase a few plants of each variety, and propagate them to obtain a supply for a planting. This will, of course, take time and cause the loss of a year with strawberries, and of two or three years with the shrubs. The works referred to give directions for propagation, and seasonable hints are to be found in these Notes... We therefore commend the consideration of a

*Fruit Garden* to the farmer, primarily as a source of health and comfort to his family, and as affording light and healthful occupation to its younger members, and, secondarily, as a source of profit.

*Work to be Done* in gardens already established.—Whatever of pruning has been omitted, should be completed on mild days.....The autumn has been so mild that we have not, up to the present time, Dec. 15, covered the strawberry beds; it is better to wait until the freezing of the soil indicates settled cold weather, as strawberries are perfectly hardy, and the covering is more to avert injury to the roots by frequent thawing and freezing, than to protect from the cold....Coarse manure may be applied around currants and gooseberries; the soluble portions will find their way into the soil, leaving the rest as a mulch in hot weather.

### Kitchen and Market Garden.

In the introductory Notes, we have suggested that many farmers may cultivate with profit, several crops that are regarded as belonging to the garden rather than to the farm. Those who undertake to raise crops which they have not grown before, should study the best methods, as followed by those who had profitable experience in such culture. "Gardening for Profit," by Peter Henderson; "Money in the Garden," by P. T. Quinn, and "Farm Gardening and Seed Growing," by F. Brill, are all excellent works, each giving the experience of its author; together they form a library of great value, and we do not see how one who proposes to make the most out of his land can well dispense with either.

*Care of Produce.*—Up to the middle of December, the problem has been, not to protect our crops from the frost, but to keep them dormant. In such mild weather, the nights are appreciably cooler, and the root cellar should be left open at night and be closed during the day. Roots and celery in trenches, should have only sufficient covering to keep off the sun, and it would be better if this were done by means of boards raised sufficiently to allow the air to circulate beneath them.

*Cold Frames* present a similar difficulty, and every care in the way of shading, must be given in such weather, to keep the plants dormant if possible.

*Manure-Making* is one process favored by this mild weather, and while decomposition goes on rapidly, prevent overheating by turning and watering, if the interior be dry.

*The Hoe and Spade*, wherever the soil is not too wet, may be kept at work in mild weather, and thus facilitate the spring operations.

*Implements* should be overhauled and put in order, and the stock replenished. Extra plow-points, cultivator teeth, and duplicates of parts likely to be broken, save many a half day's work.

*Seeds.*—Overhaul the stock; if in doubt as to the vitality of any, there is time to test them by sowing in a pot or box of earth in a warm room.

*Sundry Matters.*—Provide a supply of pea-brush and bean-poles....Make markers of various widths, and dibbles....A well-made wooden reel for the garden line, is better than the weak iron ones sold at the stores....Labels or marking stakes should be provided; have these so large that they can not be hoed up without some trouble.

### Flower Garden and Lawn.

Beyond caring for the walks, and preventing injury by heavy snows, but little can be done here except in planning for next season....Evergreens especially are liable to injury; if damp snow lodges in the top and freezes there, there is danger that the branches may be broken or twisted out of shape, causing deformity; it should be shaken out when it first falls. Accumulations of snow should be removed from the lower limbs for fear of similar accidents.

**Greenhouse and Window Plants** should now be looking at their best, and new growth and bloom repay the care bestowed upon them. .....Chrysanthemums, as they pass out of flower, should have the tops cut back, and the pots put in a frame or the cellar....Bring bulbs and other plants that were potted for forcing, to the greenhouse or window, watering gradually at first, and giving it more freely as they increase their foliage ....When the flowers of Hyacinths and other bulbs begin to fade, cut off the flower-stalk, and, if it is desired to keep the bulbs for planting out, let the leaves continue until they fade....Should very cold nights occur, draw the plants back from the windows; if freezing is feared, cover with a sheet or blanket properly supported above them....Give all smooth-leaved plants an occasional sponging, one leaf at a time; those with rough leaves may have the dust removed by showering; covering the plants with a paper or muslin screen while sweeping is going on, will aid greatly in keeping them free of dust....When air can be admitted from outside without a direct cold current upon the plants, do so, if but for a few minutes....Insects will increase as the days lengthen; all the larger ones, like scale and mealy-bug, can be picked off, or scrubbed off with a brush and soap-suds. Frequent showers applied to the lower surface of the leaves, as well as the upper, will check the red-spider; and tobacco, whether in the form of smoke, liquid or powder, will kill plant lice....Worms in pots do injury by making channels in the soil, and compacting the rest; by turning out the ball, they may often be picked off; if this fails, water with perfectly clear lime-water, and then with rain water.

## Our Steel Plate Engraving, "The Farmer's Pride."

This magnificent work of art, painted by JEROME THOMPSON, the eminent landscape painter, and engraved by MARSHALL, "The Master of the Art in America," is receiving deservedly flattering encomiums from every quarter. Those whose orders have not been already filled, must bear with us a little, inasmuch as the immediate demand for the picture has exceeded our capacity for getting them off to subscribers. From this time forward, however, we expect to be able to send them as fast as called for, and we hope during the next few weeks to place this work in Two Hundred Thousand Homes. No Steel Plate Line Engraving of equal workmanship, size, and character, has ever before been supplied as a Presentation Picture. It will indeed be a most acceptable and pleasing ornament, alike in the lowliest dwelling and most palatial mansion. In answer to inquirers, we have to say: the Engraving is supplied *only* to *bona-fide* subscribers to the *American Agriculturist* for 1879. The price to all others, pre-paid, is $5.00. For full particulars see page 35.

## A Premium for Every Subscriber.

Except in some small places, where nearly everybody already takes this paper, there are very few of our readers who do not *each* know at least two others who would be profited by the perusal of such a paper, and who would take it if its merits were explained. The Table, on last page of Cover, names 20 desirable articles, one of which will be presented to any one sending his own and two other subscriptions at $1.50 each a year. It is very easy for a multitude of people to *each* make up a larger list and get a more costly Premium. The articles are described and illustrated in the November number. *An Illustrated Descriptive Sheet will be sent free to any one desiring it.*

**Clubs** can at any time be increased by remitting for each addition, the price paid by the original members: or a small club may be made a larger one at reduced rates, thus: One having sent 6 subscribers and $7, may afterwards send 4 names more and $3, making 10 subscribers for $10.00; and so for the various other club rates.

*containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of room elsewhere.*

**WILL YOU JOIN The 20,000,** who have obtained, *without cost*, one or more of the valuable Premium Articles, offered *free* to those who forward the names of some of their friends and neighbors as subscribers to this Journal? They are good articles, many of them very valuable, and **This Month of January** is a *good time* to secure them. See last cover page, and if you have it not, send for the Illustrated Descriptive *Premium List.* A postal card, giving your address, and saying "send premium list" will bring one free.

**American Agriculturist MICROSCOPE Still Available.**—We are glad to announce that we shall be able to supply this valuable little instrument to new subscribers, and to old ones who have not had it, up to December 31, 1878, for 40 cents at the office, or deliver it anywhere in the United States or Territories for 60 cents; and on and after January 1, 1879, and during the year 1879, for 50 cents at the Office, and for 70 cents delivered as above. This applies only to subscribers who have not had one. To all others the price will be the same as through dealers, viz.: $1.50 each, or $1.65 if delivered free. The 3 *lenses*, alone, would cost more than this, in any other form. Over a hundred thousand of our readers have already enjoyed their use.

**As a source of information,** we always advise our readers to go through the advertising pages carefully. Thousands of inquiries come to us about implements, seeds, plants, animals, etc., which are directly answered in the business columns. Besides, seeing what others have, and how they describe their wares, is quite likely to suggest some new thought that will be useful.

**The Rapidly Increasing Circulation** of the *German Agriculturist* affords us gratifying assurance, that its many improvements are being observed and appreciated. The splendid full-page engraving which now appears in every number, is richly worth the whole year's subscription price. Every German cultivator and laborer on the farm, or in the garden, should have the paper; while its varied household departments make the journal invaluable to every German home, either in the Old World or the New.

**Be Early.—This month** is none too early to begin to lay out plans, to study up implements, the best varieties of seeds to plant or sow, and *where to find them.* It is a good time to send to dealers for their catalogues and circulars, find what is in market, and the prices, and make comparisons. Dealers are glad to supply information, and a penny postal card will bring what is desired. As soon as decided, it is well to get orders into the hands of dealers early, even for the plows and mowers, etc., wanted next summer. They will have time to prepare and meet such orders well and be without excuse for delay. Our business columns have the cards of many trustworthy manufacturers and dealers. In writing to them for circulars, or catalogues, it is well to inform them that you are members of the *Agriculturist* family; they will thus know what you expect of them, and what we expect of them, in the way of fair dealing and promptness.

**Bound Copies** of volume 37, and of every previous volume back to Vol. XVI. (1857), neatly bound, with gilt backs, Index, etc., are supplied at $2 each (or $2.30 if sent by mail). See Publishers' Notes, 2d cover page.

**Send us Sketches for Engravings.**—We invite every reader who has made, or uses, or sees others use, any new device or contrivance, from the smallest item upward, which will help others in any way, to send an account of it for the *American Agriculturist*, describing it plainly, and giving some outlines and markings that will enable us to construct a clear engraving. No one need hesitate on account of the rudeness of drawings or sketches. We keep a corps of artists and engravers who know how, and whose business it is, to put such things into proper form. Some most valuable hints have come in this way from farmers who never put a sketch of any kind on paper before. Don't omit the Indoor matters. The Housekeeper's work needs all the aid

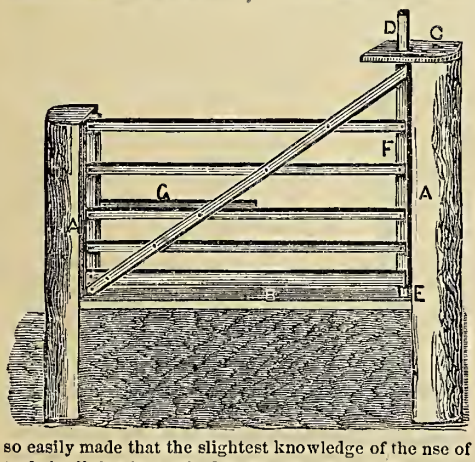
it can get. We mean that in the future, even more than in the past, these engravings shall be a distinguishing and most valuable feature of this jonrnal, making it superior to any other. For some time past from 50 to 70 such engravings have appeared in each number, including the five new pictures on every first cover page; and we shall be quite glad to increase the illustrations, as the supply of new topics furnishes materials. These engravings bring an object, an implement, a contrivance, a mode of work, right to the eye and understanding, far more clearly than any amount of words could do.

**"Will it Pay to Keep a Cow,** in Village or City?" asks a reader of the *American Agriculturist*, who is a professional man, living in a village. He "has a stable, can get pastnrage dnring six summer months at 37½ cents a week; a boy will drive the cow to and from pasture, and milk her night and morning, and feed and milk her in winter for one-sixth of her milk. Hay costs $12 a ton; bran, 1¼ cents per lh. I can buy milk at 4 cents per quart, or sell any snrplns to neighbors at the same price."—A fair cow ought to average 10 quarts a day, 270 days in a year, or 2,700 quarts. Deducting one-sixth, or, say, 500 qnarts, for the boy, leaves 2,200 quarts, at 4 cents, eqnal to $88. Six months' pasturage, $10; about 3 tons of hay, $36; 1,000 lbs. bran, or 6 lbs. a day for six months, $13. Total cost, $58. Profit, $30. The value of the calf, and especially of the manure, should be worth much more than the risk and any depreciation in valne. At these figures of cost, the cow would pay $8 profit, reckoning the milk at only 3 cents per quart. The *best* profit would come thus: Bny in spring a fresh milch-cow, a fair milker of common breed; keep her from breeding; milk her 6 to 8 months, or until she ceases to give 7 qnarts or more a day; then dry her quickly, feeding a few bushels of corn meal, nntil she gets in good condition for beef, and sell her to the bntcher. Farrow cows thus treated, take on flesh very rapidly, and make very good beef, if only 6 to 8 years old. They will sell for nearly as much for beef as they cost in spring, and the winter's keep, and loss of three months' time is saved. We much prefer a farrow cow's milk, especially for younger children. A fresh, good milch cow, bought in autumn, will yield fairly during winter, and thongh farrow will keep up milk on snmmer pasture, and can be heefed in antnmn, or when she fails in profitable milk-flow. We should keep our own farrow cow, even if compelled to reside in a city, hire a stable, and feed hay, meal, and bran.

**The Wisconsin Dairymen's Association** will hold its sixth Annual Convention at Kenosha, Jan. 22-23. Kenosha is in one of the oldest and best developed dairy regions of the North-west. The meetings of this Association have been of much value to the dairymen. Hon. D. W. Curtis, Ft. Atkinson, Wis., is the Secretary.

**The Iowa Fine Stock Breeders' Association** will hold its Annual meeting at Desmoines, Jan. 8-10. This is also the date and place for the Annual meeting of the State Agricultural Society. F. B. Stacy, Stacyville, Iowa, is Secretary of the Breeders' Association.

**Tennessee Farm Gate.**—"W. O. Wiggins," Cleveland, Tenn., sends a sketch of a farm-gate in quite common use in that section. "It is cheap, durable, and




so easily made that the slightest knowledge of the nse of tools is all that is reqnired to do a good job. The posts *A, A*, are generally of chestnnt and from 8 to 12 inches in diameter, and are better ronnd than sqnare. *B* is a piece of timber, with its npper surface flattened, 4 to 6 inches wide, and level with the surface of the gronnd; it is made to fit tightly between the posts and tends to keep the hinge-post from leaning under the weight of the gate. The lower end of the hinge-post is secured in place by cobble-stones and earth well packed. The npright, *F*, is made long and has a jonrnal on each end, the npper one, *D*, passing throngh a hole made in the plank *C*. The lower jonrnal *E*, fits into a hole in the timber *B*, completing the hinge. The piece of plank *C*, is pinned or spiked on top of the hinge-post. The latch *G*, is an ordinary sliding-bar fitting in a mortise made for it in the post. Make the journal-post of 3 x 3 oak or pine, the latch-post of 2 x 3 pine, the horizontal bars of 1 x 3 ash or pine, except lower one, which should be a 1 x 6 inch board, and the diagonal piece 1 x 3. Make the gate no higher than 5½ feet, and thus avoid useless weight. It is the fault of many gates that they can not hold their own weight, and are constantly coming apart and making trouble. This gate will swing either way if the ground is level. There are no iron binges to be breaking or coming off. There is no money outlay except for a few nails or bolts." [Line the hole in which the upper journal turns, and cover the bearings of the lower journal with leather, and there will be little friction if they are kept well oiled.—EDS.]

**Lines for Driving three Horses Abreast.**—In reply to an enquiry of "G. B. S.," we illnstrate a method of arranging lines for driving three horses

abreast. There are bnt two lines, each one having two leaders, which buckle to the bits upon each side. The long leaders cross the ring in the saddle npon the middle horse's back; the short ones cross in a ring, here shown, which may be fastened to one of the short leaders.

**How to Know a Steel-Plate Engraving.**—"A Subscriber" writes: "I wish you would tell me how to know a real steel-plate engraving when I see it. I have a pictnre received as such, but one of my neighbors says it is only a '*litograph*,' while another says it is a '*photo-lithograph*.'"——You can generally tell a steel-plate engraving by the fact that the color or ink is npon *raised* lines and points, as seen around the edges. In ordinary engravings the printing ink is pressed *into* the paper from raised surfaces. In steel-plate printing, the lines and points are cnt *into* the plate with a bnrin or sharp hard tool. An ink-roller is rnn over the surface, which fills up all the lines and indentations made. The whole surface is then wiped and rubbed clean and polished bright. The plate paper is then laid on and pressed so powerfully that it goes down into the lines and picks out the ink or colors left below the surface when wiping it. This process of inking and cleaning has to be gone through with carefnlly for *each* impression taken, and a man has to work hard to print more than fifty or sixty sheets a day from a large plate.

**The Beautiful Steel-Plate ENGRAVING,** now going out to our readers, will nndoubtedly be highly esteemed by all who are good judges of gennine engravings of this kind. The leading figure in the foreground and her surroundings, the other figures more remote, the trees, the several bnildings, almost obscured by foliage and by distance, the clouds, the play of light and shade, all make up a charming view. It is interesting to thiuk, when looking at such a pictnre, that the *many thousands* of lines and points of color which make up the gronnd-work, the light and shade, indeed the whole surface, were each patiently cnt into the plate of *steel*, by an artist's hand gnided by an artist's eye; that a false stroke of the fine-pointed tool over the whole plate would have produced a blemish; that cutting a little too deep here, or too shallow there, would have spoiled the light or shade. This *line* engraving will mellow and improve by age, and will grow npon one the longer he *studies* it, and will be qnite as attractive in after years, as now. We enjoy knowing that it will be an ornament, and give pleasnre, in many tens of thousands of homes, all over the land. If this journal were worth nothing in itself, we feel quite sure that the Engraving wonld alone be worth much more than the small sum paid for both of them and their delivery. But we mean to make the paper a sonrce of pleasnre, instruction and profit.—May we not ask our readers to exhibit both the paper and the picture to their friends and neighbors, and invite them to avail themselves of both of them? This Engraving ought to adorn every dwelling, and the *American Agriculturist* SHALL he made worthy of the perusal of every one.

**Live Stock Going to Europe Successfully.**—An important item of news came from London by telegraph, Dec. 5. The steamer Brazilian, leaving Boston Nov. 11, on Dec. 4 landed at Birkenhead, opposite Liverpool, 253 head of live cattle, including 40 prize animals, each weighing more than 2,000 lbs., several cows in calf, and **1,100** live sheep. Though at a period when high winds prevail on the ocean, *not a single animal was lost during the voyage*, and all arrived in good condition. This shows what can be done, and will he done more largely than ever, especially now that the restrictions upon imported cattle are lifted, as noted elsewhere. With our broad pastures and magnificent corn-growing territory, we can compete successfully with all of Western Europe in supplying live and dead meats. This is another most encouraging outlook for American farmers. One important lesson is, that we should make every effort to grade up our cattle by the diffusion of superior male stock. Shorthorn bulls ought to he in great demand now.

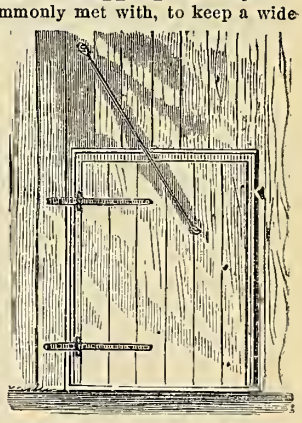
**California Raisins.**—The crop of 1878 is the largest ever produced in the State, the estimates of the California papers ranging from 70,000 to 100,000 boxes.

**Becoming a Veterinary Surgeon.**—"Memphian," of Memphis, Tenn., asks if he can become a veterinarian by studying books on the subject, as he is not ahle to attend the college in New York, and wishes us to advise him as to the proper books.—Our reply to this is a most positive NO! If our young man begun to read by himself, he would at once take up diseases and their cures, which should he the very last. The first study should he the anatomy and physiology of domestic animals, and these can not be properly learned, nnless he can dissect them, which is not practicable, except at a veterinary college, nnder proper instructors. He should fully understand the action of every part in health, in order to know when it is diseased; then he should study the various forms of disease, and as much of veterinary practice is surgical, he should see and assist in the various operations, which can only be done at a veterinary hospital. We would by all means encourage our young friend, if inclined towards it, to study veterinary medicine, and to make every sacrifice to this end, but we would most earnestly dissuade him from the attempt to become a self-instructed veterinarian, and thus add, however nnintentionally, to the number of half-qualified or not at all qualified empirics who all over the country bring the veterinary profession into contempt.

**Pampas Grass Plumes.**—The Pampas-grass (*Gynerium argenteum*) has magnificent soft silky plumes nearly two feet long, that are much prized for parlor decoration. This grass succeeds in California far better than it does in any Atlantic State, and its plumes are much finer than those produced elsewhere. According to a Santa Barbara paper, Mr. Joseph Sexton of that place has this year forwarded 40,000 plumes to San Francisco, mostly to be sent from there to eastern cities.

**Smoking Clover Seed.**—The uncertainty of law is illustrated in a recent trial in England under the *Adulteration of Seeds Act*. The law defines "to dye seeds," as meaning "give to seeds hy any process of coloring, dyeing, sulphur smoking, or other artificial means, *the appearance of seeds of another kind*." As the accused only dyed over old clover seeds, to make them look like new clover seeds, and not like seeds of "*another kind*," he escaped all penalties, thongh the judges did properly give him a piece of their mind, and expressed sincere regret that, as "law was law," they could not detain him.

**To Prevent a Door Sagging.**—A simple arrangement not uncommonly met with, to keep a wide barn-door from sagging, is represented in the engraving. A light rod of ¼ to ½ inch iron, is attached by rings and holts to the door near its onter edge, and to a point on the side of the huilding directly over the hinges of the door. Thus attached, the rod is practically a part of the door, and swings with it on the same axis. The upper eye-bolt is of course inserted into a post or girt, to hold it firmly, and the lower one passed through the frame of the door and a stout cleat fastened to the inner side. Thongh large swinging doors to barns and other bnildings, are fast being replaced hy sliding doors there are still many of the old fashioned sort, that would be more serviceable, by an attachment of this description.



**Illinois Agricultural Institute.**—The Illinois Industrial University, at Champaign, will hold an Agricultural Institute January 27-31. In some respects this Institnte will be unlike others of the same name, as the leading feature will be courses of lectures on practical agricultural topics, and on the sciences directly relating to agriculture, by members of the faculty. There will

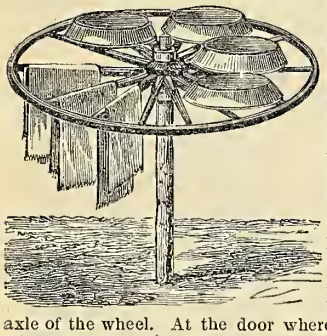
also be addresses and general discussions by farmers in attendance. It is announced that the chief object of the Institute is to give young farmers who cannot regularly attend the University sessions, an opportunity to get a fair idea of some of the most important principles of agricultural science and practice.

**The Population of the World,** according to the latest German estimates we have seen, is 1,340,145,000; of whom 413,000,000 are reckoned as Christians (including the Protestant, Catholic, and Greek Churches); Israelites, 7,000,000; Mahomedans, 120,000,000, and the rest numbering over 700,000,000, are reckoned as heathens.

**Labor in a Vegetable Garden.**—"J. B.," Normal, Ill., wrote to inquire how much vegetable garden one man and four boys from 8 to 10 years old, with all appliances furnished, could tend. This being a matter with which our contributor, Mr. Peter Henderson, is perfectly familiar, the letter was referred to him, and he writes: "Much would depend on the kind of crop grown and on the condition of the soil. In our Jersey market gardens, where we have a rich sandy loam, and grow crops so close that all are worked by hand-weeding, the average labor employed is one man per acre. This includes preparing ground, manuring, planting, and working the crop up to maturity, as well as the washing, tying, and preparing of the vegetables for market. This, of course, is for the *double* crops, such as: *first* cabbage, lettuce, beets, onions, etc., in spring, followed up by celery, herbs, beets, etc., as the *second* crop. If the condition of things where J. B. resides, is the same as here, one man and four boys from 8 to 10 would not cultivate well more than an acre and a half in vegetables, for the four boys would not be likely to do the work of more than the half day's work of a man, after deducting attendance at school.

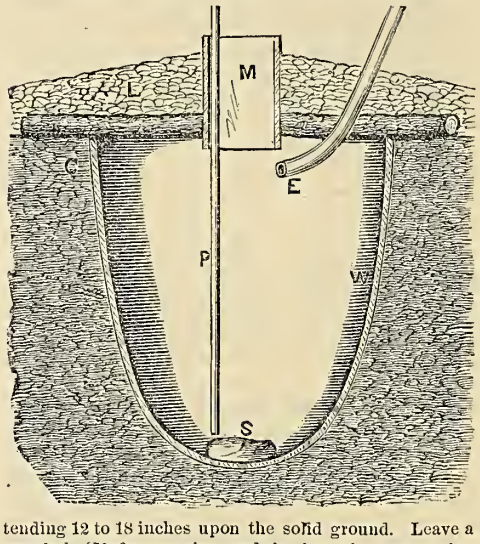
**Small Printing-Presses,** when introduced several years ago, met a general want, especially among those tradesmen, such as seedsmen and druggists, who use a great variety of labels, and with country store-keepers at a distance from printing offices, who could stamp their bags and wrappers. These soon started an active competition in the manufacture of presses, reducing the price it is true, but reducing the quality a great deal more, until some of those offered in flaming advertisements are worth little more than their value as old iron. In an article like a printing-press, with many moving parts, which must work with ease and accuracy, there is a point beyond which cheapness can only be attained at an expense of quality. Among the really good small presses, is the "Model Press," advertised elsewhere by J. W. Daughaday; these have been carefully examined and they appear to fully sustain the claims of the makers. A good small press is an excellent thing for a boy of mechanical tastes; we know of several intances where boys make a clever sum by printing handbills for store-keepers and others, in places were there is no printing office.

**A Handy Drying Rack.**—An ingenious improvement on the ordinary styles of drying horses in use at the back door of every thrifty farm-house, is represented in the engraving. It consists simply in a light buggy wheel that has served its time in its first field of usefulness, mounted on a low post. The upper end of the post is made to receive the hub like the axle of the wheel. At the door where we saw the one from which this sketch was made, were two of these wheel-driers—if we may coin a word—one for cloths and the other for dairy utensils. As the maid stands with her pile of pans or handful of cloths, she places them on the wheel one by one, revolving it to suit her motions. It is a convenient and efficient contrivance, and very easily provided, as any one can get it up without expense.



**The Farmer's Friend.**—At the trials of Grain-Drills at the Paris Exposition, in which there were over 20 drills entered, including American and European, "The Farmer's Friend" carried off the highest honors in the gold and silver medals. The first prize, a gold medal, was given by the jurors on a field trial, 50 miles from Paris. One part of this field trial was the removal of the "hoes," and tying sacks to the delivery tubes; then driving over a road for about a mile, weighing the grain separately from each tube, and driving back over the same distance and weighing again. The result was a variance of only an ounce and a half. This triumph of the "Farmer's Friend Grain-Drill" in France, will please those who have proved its excellence by actual use here.

**Cheap Cisterns.**—Plenty of good water is of prime importance everywhere. There can be no better water than that naturally distilled, falling as rain or snow. On the average, at least 300 barrels of it fall upon every building 20 feet square, annually—in some places more, in others less. To catch this from every roof and keep it for use as wanted, is not difficult if one has cisterns enough. *Cheap cisterns* are easily made wherever there is solid ground within 2, 3, 4, or even 5 feet of the surface. Remove the lighter surface earth (*L*), down to that which is compact (*C*.) Dig as many egg-shaped cisterns as are required, 6 to 9 feet in diameter at the top, and 6 to 10 feet deep. Put upon the sides and bottom an inch thick, or so, coating of mortar made of clear sand and any good hydraulic cement, often called "water-lime." At the top of the *solid* earth, cover with any durable timber, heavy plank, or even poles or rails laid across with the ends ex-




tending 12 to 18 inches upon the solid ground. Leave a man-hole (*M*) for entering, and for inserting pump-pipe (*P*), or for drawing water with buckets. The entrance of water is through the pipe (*E*). Spread cement over the wood covering. Fill in the earth (*L*), raising it above the level to shed off water. To apply the plaster (*W*), first coat the earth with a *thin* layer of equal parts of sand and cement, mixed soft and apply as soon as mixed, beginning at the bottom. Next apply an inch or more of mortar made of 1 part cement and 3 of sand. If the soil be not very firm, or if it is springy, let this coat be 1½ to 2 inches thick. Finish with a thin coat of equal parts of good sand and cement, and "white-wash" with a brush with a thickish mixture of cement and water with no sand. Put a flat stone (*S*) at the bottom for entering water to fall upon, to prevent wearing the cement. We have earth-wall cisterns like the above, covered with locust poles, that have done good service for over 20 years, with no signs of failure yet, and we know of many others like them.

**What Must a Farm Do to Support Itself?** asks a subscriber, adding that "he has disputed all summer with another, on that subject."—If our correspondent were a farmer, he would not ask that question of us, but would stop disputing with his neighbor, and show by his work what one farm could do to support itself. It is not by talk, but by work, that such disputes are settled. There is but one answer, viz.: A farm to support itself, must have its receipts at least balance its expenditure, and that without deterioration of the soil, or allowing the buildings and machinery to get out of repair.

**Standard of Excellence for Sheep.**—"L.," Columbia Co., N. Y. There are no settled or published standards of excellence for sheep. The points which constitute an acceptable standard are all given in "Stewart's Shepherd's Manual," of which a new edition has been recently published by the Orange Judd Co.

**To Free Calves from Lice.**—"G. B. B.," Long Island, N. Y. When calves are infested with lice, it is difficult to rid them of the vermin. Beside the neck, the brisket, flanks, and under the thighs are favorite places for lice. The calves should be well carded all over with a card dipped in kerosene oil, and well shaken; then thoroughly brush every part of the body, especially where the vermin harbor. Give a tea-spoonful of sulphur daily in the feed, and the skin in harboring places well smeared with a mixture of raw linseed oil and sulphur.

**A Spring Show of Milking Stock** is in contemplation, and it is proposed to hold it at the American Institute, New York. The exhibition is to be something after the manner of those held in Great Britain, at Birmingham, Glasgow, London, and Tavistock. Dairymen who have had experience at those shows say that New York is as good a location as any of those mentioned, as the City is easily reached by rail and water from all sections of this country and Canada. Such an exhibition ought to call out a numerous attendance, though the long distances—obstacles which English and Scotch farmers do not have to contend with—may prevent it. That the dairy regions of the East at least might gain much from such an exhibition is shown by the success of the exclusive cattle shows of the West.

**Various Matters.**—There are numerous schemes, which hardly belong in our Humbug columns, yet from the inquiries made by our readers, need a word of notice. For example, in a neighboring city there is advertised

**A Piano for $5.**—Though satisfied ourselves about the matter, yet in behalf of our readers, we requested a friend in the city where it is sold, to step in and examine it. His report is just such as we could have made without seeing the instrument. The price of the piano is $5—and it is probably worth somewhere about that sum. If any suppose that a piano-maker will sell his goods for much less than it costs to make them, or that a piano worth $300, $100, $50, or even $20, is to be sold for $5, they have very little knowledge of business. ..Here is a Philadelphia concern that offers

**"Mammoth Rye, or Diamond Wheat."**—This is calculated to confuse. The grain is either a rye or it is not; it is either a wheat, or it is not. It can not be both rye and wheat, nor can it be a rye *or* a wheat. Those who offer it for sale should be able to say what it is and offer it under its own name. We have already described, figured, and given the history of this grain in March last, and have shown that it is a grain that has long been known in Europe as the Polish Wheat, *Triticum Polonicum*, and there is no possible excuse for these Philadelphia people to advertise it as "Mammoth Rye, or Diamond Wheat," unless they wish to "darken counsel." The grain has a varied reputation abroad, and we have reason to suppose that it is one much influenced by soil and climate. But we do not now discuss its value. It has cost us no little trouble and research to find out what the grain really is, and we have a right to insist that Messrs. Haines & Co. shall put it forth under its real name. Gentlemen, if you know anything about grains and seeds, you know that it can not possibly be both wheat and rye....A correspondent in Stark Co., Ill., sends us a sample of

**Doct. H's. "Hog Cure,"** asks our opinion, and "if not too much trouble, to analyze it." We can't give an opinion, as it is a secret compound. The directions tell how to mix it "for hogs" and for "pigs"—and it appears to be assumed, that whatever may be the matter with hog or pig, he is to be dosed with this same stuff "until relieved." It comes under the head of quack medicines.

**As to Analyses,** we put our chemical apparatus away several years ago, not having the time to make simple examinations, much less analyses. An analysis would cost all the way from $10 to $50, if not more. If a vegetable compound, an analysis would be useless.

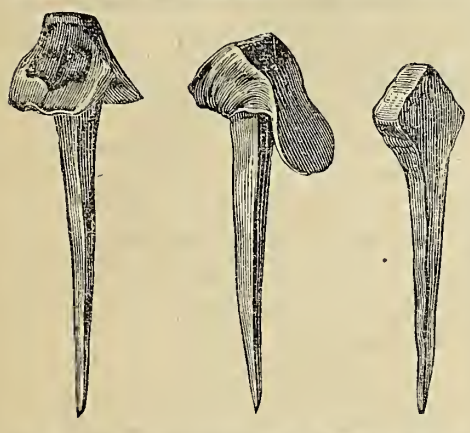
**Scratches in a Horse.**—"C. F.," Washington, D. C. This disease is not permanently cured by outward applications, as it is the effect of a disorder of the blood. Give half an ounce of hyposulphite of soda, daily, for a week or two, and wash the leg with one dram of carbolic acid in a quart of water. The diseased skin should be dressed twice a day with this, and be kept perfectly clean.

**A Durable Fence.**—The objection to the common board fence, as usually made, is that the ends of the boards are exposed to the wet, without chance to dry quickly, and soon rot—the more so when a lap-strip is nailed over them. To avoid this, the posts may be cut away, to fit the ends of the boards tightly; the lap-strip then covers the joints securely, and prevents the entrance of water. (See engraving.) If the ends of the boards and the mortises are painted, their durability is much increased. Many fences go to destruction simply from lack of proper care in their construction. If we must build fences, let us construct them so that they will not go to waste, because a little extra labor and cost at the outset happens to be necessary to insure their comparative permanence.

**Cattle Exportation.**—Since writing the article on page 20, we learn that the British Government has exempted American and Canadian cattle from the provisions of the bill mentioned in the article above referred to, if accompanied by government health certificates; otherwise they will be slaughtered at the landing. Here is a chance for the friends of veterinary medicine to do a great favor to the profession, by inducing the Government to appoint veterinary inspectors to have charge of this certificate business. It is important that the inspection be put in the hands of veterinarians, or there will be

no surety of only healthy animals being shipped. A few diseased animals shipped will endanger the interests of the export trade and reflect alike on shippers and breeders.

**Horse-Shoe Nails Abroad.**—An observing travellcr finds much to interest him in the minor cconomies of a strange people, and in noticing how differently they do things from the methods he has been accustomed to at home. A friend has presented us with a couple of horse-shoe nails, made in Greece, of the kinds in general use in that country; they are made hy hand, and while of the rudest shape, are from the very hest Sweedish iron. They were sent to this country to asccr-



tain if some of our nail-making machines could he adapted to turn out a similar product. The left-hand and middle engraving show these Grecian nails, while that at the right hand represents a nail which the writer brought home many years ago from Mexico, and which, until the Grecian product came to hand, he snpposed was as rude as it was possihle for a nail to be. In the Mexican shoe there is a square hole with sides beveled, into which the lower part of the head of the nail fits snugly, and a horse shod in their manner is protected against slipping on the smooth rocks which in many portions of that country he is often ohliged to travel upon.

**Nameless Letters.**—"G. W. W.," writes from Washington, D. C., as follows: "Knowing that you receive many important letters without name of town, county, or State, or without signature of the writer, I send statement of this kind of blunders by postmasters, compiled from hooks of the Post-Office Department. For fiscal year ending June 30,1878,the numher of postmaster's requisitions for postage stamps, etc., returned for signature, 2,704. The nnmber returned for correction, or not stating what was wanted, 1,532. Numher of headless requisitions returned (*i. e.*), requisitions without name of office, county, or State, 276. The labor of finding where the headless requisitions originated, and returning to the postmaster signing the same, can not be calculated; hut more time was spent in finding where *one* of the careless postmasters lived, than would properly fill all requisitions of this class. This information is given to show the large number of people who do not write their *office, county*, or *State*, at top of letters; or, if headed properly, fail to *sign their name*."—Similar letters await identification here.

**The Best Feed-Cutter.**—Several letters from various sections of the country asking us to name the "best feed-cutter," and the "best root-cutter." The true and shortest answer would be—There is no best. In the advertising columns of this journal are found mentioned various styles of feed and root-cutters and other implements, each of which is good. Some one may excel in speed, another in quality of work done, another in ease of running, etc., but on the whole, they are about equal to each other. We aim to admit advertisements of only those implements which will give satisfaction to purchasers, and we helieve that readers may order of any advertiser in these columns, and in the great majority of cases, they will be fully satisfied with the result.

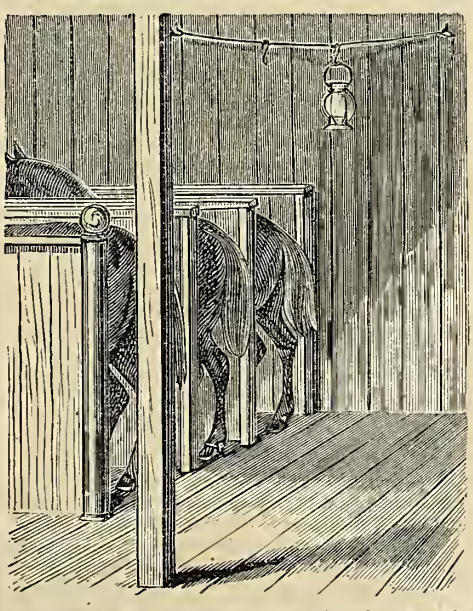
**The Dinner Year Book,** by Marion Harland, is just issued hy Charles Scribner's Sons. The author's earlier "Common Sense in the Household," was so true to its title, that we are favorably disposed, at the outset, towards any book she may present us with. The present is a somewhat more ambitious work than the former, and takes her more into the refinements of providing and ccokery. Her plan is, to give a series of hills of fare for seven days of four weeks in each montb, leaving the housekeeper who follows the work literally, to her own resources for the odd days not provided for, which will prohahly lead to "picked-up dinners." It is impossible to know the real value of a work like this, unless one follows its teachings for some time, and we can only say that we are most favorably impressed with what we have seen of it, and have no doubt that it will sustain the author's well-deserved reputation in this useful department of literature. "Common Sense" is not lost sight of, even if the work is illustrated by colored plates of the showy disbes. The Orange Judd Co.have arranged to send it from this office, post-paid,at the publisher's price,$2.25.

**Beware of Bee-Wares.**—We have had inquiries about, and complaints of, one "Mrs. Cotton," of Maine, who advertises that if bees are managed on her plan, they will "pay a profit of Fifty Dollars" on every hive. While we were making inquiries about "Queen Cotton," the "Gleanings in Bee Culture," a useful journal, edited by A. I. Root, Medina, Ohio, for Nov., came to hand. The gleanings are grouped under headings, and under "Humbugs and Swindles pertaining to Bee Culture," the "Queen" bas a prominent place—indeed, she well nigh monopolizes this department. "Fifty Dollars" a hive is a rather handsome return—but then it can only be had by following her "New Principles in Bee-Keeping." We don't like to say that Mrs. C. is a humbug, for it isn't a pleasant thing to say about any woman, and a recent letter relieves us, for one has come to hand from a prominent citizen in the very town where Mrs. Cotton spins her yarn, stating that it is *Mr.* Cotton, after all, who is using his wife's name, "because he thinks it better than to use his own." From all we can learn, these Maine bee-ists are not the best kind of people to "Cotton-to."

**Spain's Barrel Churns.**—Churns are not quite so numerous as washing machines, hut there are so many of them as to admit of division into several classes. Probably next as to uumbers, after the upright dasher churns, come the harrel churns, in which a harrel-shaped receptacle holds the cream which is acted upon by revolving dashers. Among churns of this style, Spain's, advertised elsewhere by Clement & Dunbar, takes a deservedly high rank, as the closest attention is paid to every detail; tbe material of the churn is selected white cedar, put together with galvanized hoops. The dasher, of peculiar construction, can be easily removed and the whole can be thoroughly cleaned. Tbe churn is supported on a convenient stand. Many premiums awarded to this churn show the esteem in which it is held by good judges.

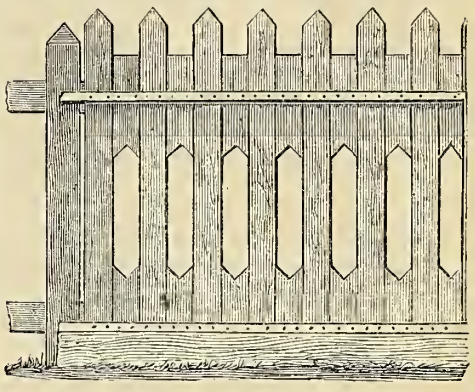
**Management of Swine.**—"C.," Republic Co., Kansas. The good management of a large herd of swine —100, for instance—requires that, to prevent sickness by contagion, they should be kept from running water that might be infected from ahove, and from contact otherwise with infected herds; to facilitate fattening they should be kept in pens, with warm, dry sleeping places; to preserve health they should have fresh pure water from wells; to prevent piling up and smothering they should not be herded in large numbers, and for the most profitable breeding the old sows should be kept over, as they are more prolific and hetter mothers than young sows. It is a fact that the vast destruction of swine hy disease in the West could be prevented almost wholly by observing proper sanitary rules. The fatal "hog cholera," so called, is comparatively unknown in the Eastern States, even in the herds numbering several hundreds.

**Light in the Stable.**—It is a dangerous matter at best to have a light in the stahle at night, and any



contrivance to lessen the risk of fire is welcome to the thoughtful farmer. The engraving represents a simple arrangement that has heen in use for many years, without accident, in the stahle where this sketch was made. A wire is stretched behind the horse-stalls from post to post, clear of the walls, and out of reach of the heads of horses or men. The lantern is hung to a hook suspended from this wire, ou which it may he moved along to light up any stall as desired. When the proprietor goes away of an evening with a horse, he does not require the men to await his return, but hefore retiring to hed, they hang a lantern with the light turned low, on this wire. Then when he comes to put up his horse, the stahle is ready lighted for him, all is safe and convenient. and the men's tempers are kept unruffled, by having their evenings to themselves and going to hed when they please.

**An Italian Fence.**—The engraving represents a style of fence appropriate to the garden or street front, which is very neat and even quite artistic. The sketcb was



given us hy Mrs. "L. H. V.," of New York, who, we believe, saw the fence in some far away Italian town, though a similar style is not uncommon in parts of this country. The foundation of the fence may be the ordinary post-and-rail frame-work. In each opening between the slats is inserted a secondary slat, quite filling the space from side to side, and extending about a foot below the rail, and half the distance from the rail to the top of the slat above. A "hand" lengthwise of the slats opposite the upper rail, and a base-board complete the fencc. It costs but little if any more to make a fence—where a fence must be huilt—that will be an ornament to the grounds, and always pleasing in its effect both upon the owner and the passer-by, than an ill-shapen affair, that pleases no one and is likely to be torn down at any time to give place to something that will be more attractive.

**Basket Items continued on page 33.**

## International Dairy Fair.

The "International Dairy Fair" held in New York the first week in December, was a success as an exhibition of dairy products and financially; in dairy apparatus and machinery and dairy stock, it was only fair. We might offer sundry criticisms, and report some dissentions, some charges of under-hand operations, and favoritism in the awarding of the prizes, etc. But this being the first attempt at an exhibition of this kind on a large scale, in the East, we are disposed to pass hy defects, trusting that they will he overcome at the next show. Taken as a whole, it was a grand display, a novel one to many citizens, more of whom ought to have seen it, for their own gratification and instruction. Douhtless the attendance would have heen much larger both from city and country, if the managers had had more previous experience with printer's ink—and advertised more freely, instead of leaving the people to learn of what was to he seen by the generosity of the Daily press. All this will be improved another year we trust. Those chiefly in charge of the organizatiou and managemeut did very well. Dairymen would have have heen pleased if more of their own number had had a share in the management. A good show of hutter and cheese was assured, by the dealers offering to sell at good prices all that was brought to the exhihition. Of the visitors the larger numher were city people attracted hy curiosity; and many of them here gained their first knowledge of *how* their hutter and cheese is manufactured. As this exhihition was the outgrowth of several Western Dairy Fairs, the preponderance of Western hutter and cheese was not surprising. Very few of the celebrated fancy-butter dairymen took part in the exhibition, perhaps thinking that the advertising would do them no good, though they might have heen generous enough to show other people something of their methods and products. It is hoped that this exhibition will lead to a still hetter one, and a larger attendancc of farmers and dairymen next year.

The "miscellaneous" list of exhibits comprised general farm implements, fertilizers, and notions, that properly have no place in a "dairy fair," hut they helped to occupy the surplus room aud amuse the rnral people.

The Fair was hardly "International," as the "foreign"

cheese was mostly of American make, except a very interesting collection contributed by Messrs. H. K. & F. B. Thurber, of New York, and a few samples sent over by a London dealer; we observed no foreign dairy implements.

The arrangement of the exhibits was excellent. A great pyramid of cheese stood on each side of the hall; one of them forming a portion of the exhibit of H. K. & F. B. Thurber is illustrated on our first page. Samples of hermetically sealed butter, of which the U. S. Army last year bought 20,000 packages, were also exhibited by this firm. The other pyramid contained ten tons of Western and Vermont cheese, that from Vermont taking the first prize over all American brands. Two cheese factories and creameries were in full operation, illustrating all the processes. Jones, Faulkner & Co., of Utica, N. Y., furnished the machinery for one of these, and made an attractive exhibit. Messrs. Whitman & Burrell, Little Falls, N. Y., illustrated in an interesting manner their "skim milk process" of making butter and cheese, going through the various processes as at a regular factory. The milk was weighed, run into the setting tank, heated up to 140 degrees, then rapidly cooled off. When the cream separated, the milk was drawn off from under it and run into the cheese vat. The cream was churned in a Blanchard factory churn, and the buttermilk mixed with the skim-milk, and both then made into cheese. Putting in the rennet and coloring matter, cutting the curd, and all the processes on to the gang press, in which a dozen or more cheese are pressed at a time, were watched by an interested crowd. This firm exhibited every article they manufacture or deal in. The "Economizer" engine which run the factory machinery is worthily gaining in popularity. As an example of the enormous extent of the cheese manufacture in this country, Messrs. Whitman & Burrell sold in 1878 about 500,000 rennets, each of which is sufficient for 350 to 400 lbs. of cheese.

City people unfamiliar with the way in which those necessary articles, butter and cheese, are made, watched with interest the processes of manufacture, and will butter their bread and eat their cheese with more than a gustatory interest hereafter, and we hope will eat more of both. Farmers with their wives, sons and daughters, examined interestedly the various appliances, which, with the view of the great extent of the industry that the exhibition gave, will enhance their ideas of their calling, and we hope teach them to reap larger profits from their work by use of improved methods and apparatus.

A new oscillating churn, the "Davis," was shown in operation by the Vermont Farm Machine Co. It is made of wood, and is thus free from the objection of butter sticking to its sides, and from the method of hanging it in a horse-like frame, it is easy to operate. A prominent dairyman remarked that the butter he took from this churn was as well made as any he ever saw from any churn. This concern also showed the Cooley Creamer, well known to our readers, and a new butter worker that works all the butter, and has no grooves or slots in which the butter can lodge. It is claimed that the objection once made against the Cooley Creamer that the butter made from it would not keep, is now overcome by letting the milk stand 12 to 24 hours exposed to the air in order to let it ripen before churning.

The butter worker of A. H. Reid, Philadelphia, was exhibited in operation. This machine is held in high esteem by many good dairymen.

Forty-five tons of Ashton's F. F. Salt in one pile made a conspicuous object near the center of the hall. This was the special exhibit of F. D. Moulton & Co., who are the agents here for this celebrated brand of salt. H. K. & F. B. Thurber made a large exhibit of Higgins' Salt, for which they are agents, and for which they claim superiority. There is a lively competition between these two brands.

Wells, Richardson & Co., Burlington, Vt., exhited their Perfected Butter Color. Samples of butter were shown by them from A. W. Cheever, of Mass., colored with this material. This butter sells for 85 cents per pound in Boston. He makes no secret of using it, and considers it an excellent article. W. R. & Co. offered $25 premium for the best butter colored with their article.

The butter coloring of Mrs. B. Smith, Philadelphia, occupied a table. It is claimed that this article has less odor than any other, and it is endorsed by good dairymen.

Chas. Hansen's Laboratory exhibited "liquid rennet extract," and cheese and butter coloring. These preparations, originating in Denmark, are endorsed by L. B Arnold and other dairy authorities here and abroad.

The Dairy Supply Co., N. Y., made a creditable display of their Pendulum Churn, the "Perfect Milk Pail," and other dairy appliances. Among other well known dairy apparatus were the "Lily Butter Worker," "Bullard's Oscillating Churn," and "Blanchard's Churn," etc.

In the cattle pens were some choice animals from the herds of S. M. & D. Wells, Wethersfield, Ct., 3 Ayrshires; Wm. Crozier, Northport, L. I.; Wm. Taber, Patterson, N. Y., 2 Red Polled Norfolks; and Devons, Durhams, and Dutch stock from various sources. Mr. Crozier showed 7 Ayrshire cows and a very fine bull, 8 Jersey cows, and a bull, and one Guernsey cow.

The display of butter and cheese was large and excellent; that from the West especially made a fine showing, comprising a large proportion of the whole. It enforced the fact of the immense resources of the West, and particularly when it is remembered that the dairying of that region is little more than beginning its development.

## Sundry Humbugs.

As a matter of course, many New Readers begin with the new year, and it seems necessary to say a word to these on the Humbug Column, and the manner in which it is conducted. Many years ago, when Mr. Judd was sole proprietor and Editor of the *American Agriculturist*, he found at conspicuous points and in the business parts of the city various mock-auction shops and other traps set especially to catch those countrymen who visited the city on business or pleasure. The swindling games were carried on openly, and if not in defiance of, at least without molestation from the then inefficient police. So many cases of fraud came to his knowledge, and in so many instances did the victims who were farmers appeal to him for redress, that he began to warn people against such shops, and to expose their methods. This naturally led to the exposure of other frauds, especially those directed towards farmers, and long before any other paper gave any attention to such matters, its Humbug Column became a feature of the *American Agriculturist*. So much for the origin. As to the present and future we propose to expose here and warn people in general, but especially farmers and those who live in rural communities, against

ALL FRAUDULENT SCHEMES,

no matter how cunningly conceived, or how plausible they may appear in their presentation. This is not a pleasant task, as it brings us to the knowledge of the worst phases of human nature, and only the conviction that our work is necessary and useful, induces us to continue in it. It is not our own estimate, but the freely expressed opinions of others, that the labors of the *American Agriculturist* in this direction have saved the country

MANY MILLIONS OF DOLLARS

by its timely warnings against and exposures of frauds. We have similar acknowledgments frequently by mail, and as they are made to us personally whenever we travel, we are encouraged to continue in the course. It is a very common thing, to receive a letter with a brief, one-sided statement, asking us to show up so and so as a fraud. Such letters are not noticed; we only expose those schemes that we regard as public nuisances, and evils which the public good requires should be suppressed, and wish it to be distinctly understood that these columns cannot be used to redress private wrongs, or to gratify personal resentment.....While we find nothing especially fresh in our New-Year's budget, the old affairs appear to be brisk, and we suppose that this may be taken as a "revival of trade." For the benefit of new readers we briefly enumerate a few prominent features.

"CLARK & CO., ADJUSTERS OF CLAIMS,"

continue to send letters beginning, "Is this your signature?" The letter contains the recipient's real signature, cut from some letter or document. The methods of Clark & Co. have already been shown in these columns, and we have given their letters, etc., in full; but as this was nearly a year ago, and the concern seems to be still active, we answer many inquiries by giving an outline of the affair in brief. Clark & Co. inform the recipient of the letter that "the money you sent in the letter from which the enclosed slip has been clipped, was invested" in certain mining stock, "valued at $500," which they, Clark & Co., will, on learning that they have the real owner of the signature, receive and forward.—Note the ingenuity of this: If one—and it appears there are many who do it, in the hope of getting stock "valued at $500,"—enters into correspondence with Clark & Co., he admits that which he knows to be false. He *knows* that he has *not* sent any money in the letter from which the enclosed slip has been "clipped," or in any other manner; still the temptation is too much for some. If one writes C. & Co., they inform them that the "charge for adjusting" is $5, which he is requested to remit. If he does this and receives the "stock," he will have paid $5 for a very useful lesson; though his stock be worth nothing. He was, in the hope of gain, willing to admit, and thus by implication subscribe to that which he knew to be false, and has paid $5 for an apparently much needed example of the truth that

"HONESTY IS THE BEST POLICY."

There is nothing on which we have more inquiries than on *stock speculations*. The country is flooded with circulars of parties hailing from Wall Street, each claiming to have special facilities for doing business, and showing that a small investment is nearly sure to yield a large return. The schemes are plausible, but ready money is cautious, and scores write us, asking about the parties and for advice. In the several inquiries we have made we have found that none of the parties sending the circulars were members of the Board of Brokers, and were consequently not known to the regular business men of the street. Our advice has been, and is given now, that we may not be asked to repeat it every month in the year,—No matter who send the circulars, or how plainly it is shown that you must win if you play—for it is only a form of gambling—

"LET ALL STOCK SPECULATIONS ALONE."

The business, when honestly conducted, is too risky for any one who has *earned* his money, to invest in it. These circulars present but one side; they do not give the reverse; they do not tell of the robberies, the defalcations, the embezzlements and forgeries, that are directly due to attempts to cover losses in just such games as these circulars invite you to.....We have not space to designate them—but there is but one thing to do with the various and almost innumerable

"DISTRIBUTIONS, GIFT ENTERPRISES,"

or by whatever name the particular lottery is called—that is—*let them alone*. We make no exceptions in favor of Cincinnati Art, Chicago Pottery, New York Jewelry, or Town lots in Western cities, no matter if Mayors, Bank Presidents, Generals or Justices support the thing. An honestly drawn lottery is a wrong, and very, very few are honestly conducted. The ticket buyers pay their full proportion of a sum, the half or more of which is taken out of the "pool" for somebody, or something else, and so, at best, they pay a full dollar for a *chance* at half a dollar. The chances of getting anything are too small to ever warrant the trial. The human mind is so constructed, so to speak, that it is positively dangerous for one to make the first investment in a lottery ticket; it is a step on a downward road that few ever retrace....The miner who, in the early days of California, turned highwayman, and gave it as an excuse that "he preferred to mine his gold already coined," should have lived in the days of

"THE CHEYENNE MINING CO.,"

when even buying the stock, gives one a kind of gold—"Imitation Gold"—already made into a watch. The "shares" are only $5 each, and whoever buys two, can have an "Imitation Gold Watch;" whoever invests in three shares, can have an "Imitation Enamcled Gold Watch," and so up along. This is mining as is mining ....It gives us grief to state that

JONES HAS NOT FOUND HIS COUSIN.

Poor Henry P. is rampaging, by letter, all over the country after those cousins of his. Jones is the most be-cousined person we ever heard of, and every month shows that he has lost—or, at least, can't find—unmerous cousins with numerous names. We gave an account of Jones' bereavement a while ago. Jones sends letters—very nice specimens of lithography they are too—informing that he saw the name of the one receiving the letter, in the "U. S. Directory"—Jones had a cousin "bearing the same name," who at the end of the war left his regiment, etc. "If you are my cousin," Jones pathetically says, "I can do you a favor and you can help me." Jones will send his cousin a ticket that will surely draw a prize in a lottery, and the cousin has only to show the prize and sell tickets. In short, act as "stool pigeon" for Jones' lottery, in which Jones can "so arrange it that you (the cousin), will draw a prize"—who wouldn't be Jones' cousin? He has 'em in Pa., Md., Mass., N. J., R. I., and we don't know how many more States—indeed so many that he doesn't always remember the names. One would suppose that even with so many cousins, if one had the unusual name of Peffard, Jones could recollect it—but he goes and calls him "Pippard." We can only account for this by the great grief that must overwhelm him in losing so much cousin. We give Jones credit for having one name right. He doesn't write it Smyth, Smithe, nor Sammith—but just straight ahead Smith. We have no doubt he will find this cousin....A concern is sending out its circulars of

GOLD PLATE JEWELRY,

claiming to have its manufactory at "Cortlandt, on the Hudson, N. Y." There is no such factory at that place ... We have often cautioned, and at the beginning of the year repeat the caution, against

CHEAP ILLUMINATING OILS,

no matter by what name they may be called. Chaps are all over the country selling recipes for making cheap oils for burning. They pretend to show that the liquids are safe, by the fact that they extinguish a burning match.

The *liquids* do not explode, but the *vapor* from them, mixed with air, does—they are all dangerous—and especially so is one called the "Celebrated Centennial Illuminating Oil," which claims to cost only eight cents per gallon. The light petroleum oils, called gasoline, naphtha, benzine, etc., are the only cheap inflammable liquids that can be had at a low price. Whoever knowingly introduces either of these into his house for illuminating purposes is guilty of

AN ATTEMPT AT MANSLAUGHTER.

This Centennial Oil, hailing from Marshall, Mich., is a special fraud, as it publishes a certificate as to the excellence of its murderous stuff, from a Professor in the "New York University of Chemistry." As there is no such "University" in New York, our opinion of Sherman & Co., who publish the certificate, need not be expressed....One of our friends writes in great indignation, that from a certain variety shop in Rockland, Mass., circulars should be

SENT TO HIS LITTLE BOYS.

We have examined this circular, and do not wonder that our friend is indignant that such stuff should be placed in the hands of his children. While we do not find anything actually obscene, and indictable under the law, we do find much that is undesirable, repugnant to good taste, and even coarse and vulgar. The first page contains illustrations of "Fun, Flirtation, and Acquaintance Cards"—all coarse and of exceedingly low tone—such cards as no well-bred youth could by any possibility use. The next page offers books, among them, one entitled, "Love-Making Secrets," offering to teach impossibilities. The next page, among other books, offers a "Fortune Teller and Dream Book," which in "promising" certain rules for foretelling what is going to happen," is simply a fraud. The offer of "Marked Playing Cards," such as "gamblers use to cheat with," of "French Transparent Playing Cards," of "Fac-similies of U. S. Greenbacks," of a book that tells "How to Make $10 a Day Without Capital," or one entitled "Widows' Traps and Maidens' Tricks," with a most vulgar and slangy description, is certainly not such stuff as any parent would willingly have his children read. So long as this Rockland concern, and many others like it, keep within the law, the only thing that parents can do is to so have the confidence of their children, that they will keep nothing of this kind from their parents' knowledge, and to always *know* what their children receive through the mails....The only scheme especially designed to entrap farmers, that occurs in this month's budget, is

PROF. A. D. FRITZ'S FERTILIZER.

This Fritz is of Illinois, and he proposes to sell for $10, the art of making his "Land Fertilizer," and he binds those who buy the secret not to divulge it, or in case they do reveal the secret, to pay him, Fritz, $500. We are totally and all the time opposed to all secrets in agriculture, but a secret may exist and may be sold, and yet be useful. Fritz publishes three closely printed letter pages and gives very little information. His style is not of the clearest. He says: "As the fertility of the soil in the older States lose their virgin freshness much sooner than our Western Prairies, it becomes more necessary to strictly attend to its fertilization." We are not disposed to argue the point, but simply say, "jess so, it do." Fritz claims that "I can so fertilize any land of any kind of soil at a nominal cost of 25 cents per acre, independent of the labor of applying it," * * * "that it will produce a heavier crop than the same land would from its first or second year of cultivation." It is a very wonderful fertilizer, that of Fritz. "Rain or drouth does not materially affect it. It absorbs moisture from the dryest soil." We wonder if it wouldn't be a good thing to put into a well in a dry time and the water failed? But when he says that after its application: "No insect will disturb the Stalk or Blossom, and the Kernel will plumply Fill,"—we conclude that his manure will be bad for the honey interests of the country, as we want the bees to "disturb" the "blossom"—and for this and for various *other* reasons we do not advise farmers to invest in Fritz's secret.

MEDICAL MATTERS

are unusually quiet. It is true that the blooming face of *Lucupia* greets us, and we are invited to read the old old stories of Doctor Bludgood and how he discovered his Life Syrup, and that most touching account with pictures to match, wherein White gives us "The Stealthy Approach of Disease, illustrated, showing how it's deadly grasp is fastened on our vitals." But these are antiquated. The only medical novelty that comes to us is a very well lithographed letter from one Thomas Holloway, London, England, which he is proprietor of

HOLLOWAY'S PILLS AND OINTMENT.

Thomas sends us his picture, and we should say that he employs a hair-dresser who is an artist in his line. He also sends us pictures of Chinese and Turks, Indians and Africans, and we are informed that these enlightened people take his pills inwardly and his ointment outwardly Thomas informs us that he expended in 1877, £40,000 in advertising his medicines "in every available manner throughout the Globe"—and yet Thomas is not happy. There is a "fly" even in Holloway's "ointment." Thomas wishes to invite our attention to a gross fraud—Mr. Somebody is using his name in making and selling

"SPURIOUS HOLLOWAY'S PILLS AND OINTMENT."

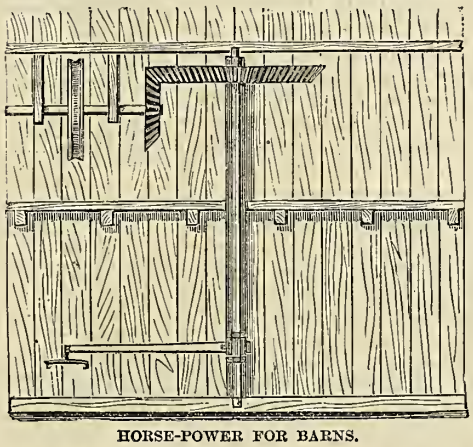
Thomas Holloway says: "Should you condescend to notice this subject in your paper you would confer a lasting obligation upon me." Thomas we condescend. We advise our readers that there are "spurious Holloway's Pills and Ointment" offered for sale. We can't foresee what disasters may result from taking in or rubbing on anything that may be spurious—but we advise our friends to beware. The only way we can suggest that will enable them to avoid the spurious, is to thoroughly abstain, now and always, from taking or using

EVERY PILL OR OINTMENT

that may be called Holloway's, or in fact, every other *secret* pill, ointment, or other remedy, whatever its name.

## A Horse-Power for Barns.

A home-made horse-power that will occupy but little space, is represented in the engraving. The upright shaft extends from the ground or lower floor up through the second floor, to a girth set to receive it. On top of the shaft is a bevelled cog-wheel, which is geared to a smaller one on a horizontal shaft, carrying a large pulley, as indicated. The horse is attached to a long arm affixed to the shaft in the room below. By this arrangement all the space on the upper floor may be utilized for machinery, which is very desirable if one is crowded for room; the horse is out of the way and can work in quiet, and the whole is compact and convenient, and furnishes a high power with little friction.



HORSE-POWER FOR BARNS.

## Talks on Farm Crops.—No. 23.

*By the Author of "Walks and Talks on the Farm," "Harris on the Pig," etc.*

A large farmer in Michigan writes that he has 20 acres of clover which it will not pay to mow. He wants to put it in wheat next fall, and asks "how would it do to drill in corn for fodder previously. Can it be cut with a reaper and *cured* in time to sow wheat?"—I wrote him, "no." Corn-fodder can be cut with a reaper, better and far cheaper than by hand. But it can not be cured and *removed from the land* in time for wheat. Some time ago I made a few stacks of corn-fodder to see how it would keep, and we are now feeding it. I can not recommend the plan. We never had a drier and hotter or better time to cure corn-fodder than the past fall. The fodder was cut with a reaper and made into sheaves like wheat, and stuck up in small stooks to cure. Nicer fodder I never saw. It was as dry as we can ever hope to get it. Two or three acres of it was on low land, and we drew off the fodder and put it in six or seven stacks. It was in prime order. But it *heated* more or less in the stacks. The cows eat it with avidity, preferring it to hay, but the sheep do not like it as well as hay, while the corn-fodder that is now standing in large stooks in the field is highly relished by the sheep. I conclude, therefore, that the only way to preserve corn-fodder is to make it into large well-shaped stooks in the field where it grew, and draw it in as wanted during the winter. Or rather, draw in enough at a time during favorable weather to last a week or ten days.

"Why don't you recommend your correspondent in Michigan," asked the Doctor, "to sow oats and peas. You had a great crop on just such land."—I have written him to that effect If his land is rich enough, and is well drained, so that he can sow early, the probabilities are that he will get a great crop. The oats and peas can be cut with a reaper, and after thrashing a good fanning mill will take out nearly all the oats. If well cured, the pea and oat straw is nearly as good as hay, and sheep do wonderfully well on it—especially if the crop is cut rather green and is not thrashed very clean.

Mr. Henry Clayton, of York, Pa., writes: "I have read your 'Talks on Manures' with care and profit. But some of your conclusions do not seem to agree with my observations.—A field was planted with corn on sod, two years ago. Last summer it was bare-fallowed—plowed three times and covered with barn-yard manure. The last of September it was sown with wheat. Previous to the seeding, a considerable pile of brush, the trimmings of an orchard, was burnt on about a square rod. This rod of land, where the brush-pile stood, has now (Nov. 23d) standing on it, wheat enough to hide a rabbit. It has four times as many blades and twice as strong as on any other rod. The field will produce in a good season, 35 bushels of wheat per acre. Phosphates and potash salts have been applied to land precisely similar, without any visible effect. Now, you say on page 215 of your book, that 'Lawes' and Gilbert's experiments seem to prove that if you have a piece of land prepared for wheat, which will produce, without manure, say 15 bushels of wheat per acre, there is no way of making that land produce 30 bushels, without directly or indirectly furnishing the soil with a liberal supply of available nitrogen.' Was there any nitrogen in the ashes of the brush? If not, what made the great growth of wheat?"

"Good," said the Deacon, "he has you on the hip. There is not a particle of nitrogen in the ashes, and I have myself repeatedly seen similar effects."

"And so we all have," replied I, "but the fact does not disprove the truth of my proposition. The ashes do not contain nitrogen, but the *soil does*, and the manure which Mr. Clayton applied, contained nitrogen. But the nitrogen in the soil and the nitrogen in the manure is largely in an *unavailable* condition. Summer-fallowing and cultivation of any kind, by exposing the organic matter in the soil to the decomposing action of the atmosphere, renders a portion of this nitrogen available. Lime does the same thing; and ashes, when applied largely, also favor the decomposition of the organic matter of the soil, and of the manure, and renders the nitrogen available. And it was in reference to this and similar effects, that I said there was no way of raising the yield of wheat from 15 bushels up to 30 bushels per acre, that does not directly or *indirectly* furnish the soil with a liberal supply of available nitrogen. This is certainly true, as a general agricultural fact. The exceptions to it are rare, and it is not necessary to discuss them. I was anxious to make this matter clear."

We can get nitrogen in barn-yard manure far cheaper than in artificial or commercial manures. But as I have said, the nitrogen in common farm-yard manure is largely in an undecomposed condition. This is especially true of *poor* manure made from straw, or stalks, or hay. Manure from grain, oil-cake, etc., is not only richer in nitrogen, but the nitrogen is more available. There are two things which farmers must aim at. First, we must make richer manure by feeding richer food. Second, we must try to make the nitrogen in our manure as available as possible. As a rule we do not get half the benefit from our manure that its chemical composition would lead us to expect—often not a quarter of the benefit. The nitrogen is there, but the plants cannot get hold of it. It lies dormant in the soil. And one way to remedy this trouble is to ferment the manure thoroughly before applying it to the land. Now is the time to attend to this matter. We commence to pile our manure to-day.

"You have had little heaps," remarked the Doctor, "in the yard for several weeks." — "Yes," said I, "we have been very busy, and have had little time to fuss over manure. We threw the manure up into little heaps where most convenient. But now that winter is fairly set in and we have more leisure, we will make one large central heap. We draw all the small heaps and all the manure and refuse we can find to this central spot to form the basis of the prepared heap. Make the heap six or eight feet wide and four or five feet high. It will soon commence to ferment. Then, every day, as the stables, etc., are cleaned out, wheel the manure on to the top of the heap and spread it. If properly attended to it will ferment all winter. There need be no loss of ammonia. The more I can ferment my manure in winter the better I like it. It puts it into admirable condition for use on spring crops. The fermentation of the manure renders it more available.

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A gentleman in Massachusetts wants me to tell him all about barley—the average yield per acre, best variety, time of sowing, and what manures to use. Twenty-five bushels per acre is perhaps a fair average crop; it varies from 10 bushels to 60 bushels per acre. The four or six-rowed barley is the most profitable. Sow as early in the spring as the land can be got into good mellow condition—the earlier the better. Drill in 2 to 2½ bushels per acre. I usually sow 2½ bushels, but many sow only 2 bushels or 1¾ bushel. Much depends on the land. It will pay wonderfully well to use artificial manure on barley at present prices. The manures are cheap and barley is high. 100 lbs. of barley brings far more than 100 lbs. of the best wheat. With good land aud artificial manures, we can grow 50 bushels of barley as easily as we can 30 bushels of wheat.

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## Science Applied to Farming. — XLVIII.

### Composition and Values of Fodder Materials.

In the earlier of this series of articles, in connection with some explanations of the advanced principles of feeding as taught by the remarkable experiments lately made in the European Stations, I gave several tables showing the composition of fodder materials and feeding rations, calculated to secure the most economical employment of the food. The interest manifested in the subject in newspaper discussions and in scores of letters from all parts of the country; the success many have had in putting the principles then advocated in practice; the advance in the science, and finally the numerous analyses of American feeding stuffs, until of late almost entirely lacking, lead me to take up the subject again, and give some figures for the composition, digestibility, and value of the materials most used for fodder. The table is from a much more extensive one, prepared with accounts of analyses and fodder rations for the forthcoming Report of the Experiment Station at Middletown, Ct.

### Food Ingredients. Chemical Terms Explained.

*Water.*—If a piece of wood or wisp of hay be dried some time in a hot oven, more or less water will be driven off. The water in feeding-stuffs varies from 80 or 90 lbs. in every 100 lbs. of young grass or fodder-corn, to only 8 or 10 lbs. to the 100 in dry straw or hay.

*Organic Substance.*—If the dried wood or hay be burned, most of it will pass off as gas, vapor, or smoke. The part thus burned away is the Organic substance. The residue,

*The Ash* contains the mineral matters—that is, potash, lime, phosphoric acid, etc., of the plant. The most important part for our present purpose, is the organic, the combustible matter. This consists of three kinds of ingredients: albuminoids, carbohydrates, and fats. The main point in economical feeding is to secure the right proportions of these at the lowest cost.

*Albuminoids;* also called protein compounds, proteids and flesh-formers, contain carbon, oxygen, hydrogen and nitrogen. They thus differ from the carbohydrates and fats which contain no nitrogen. The name albuminoids comes from albumen, which we know very well as the white of eggs, and it is found in milk. The fibrin of blood and muscle (lean meat), and the casein (curd) of milk, are also albuminoids. Indeed, the solid parts of blood, nerves, lean meat, gristle, skin, etc., consist chiefly of albuminoids. In plants they are equally important. Plant albumen occurs in nearly all vegetable juices, especially in potatoes and wheat, casein or legumin in beans and peas, and fibrin in the gluten of wheat, the basis of what farmer-boys call "wheat gum." Clover, bran, beans, peas, oil-cake, and flesh and meat scrap, are rich in albuminoids.

*Carbohydrates* consist of carbon and hydrogen. The most important are starch, sugar, and cellulose (woody fibre). They make up a larger part of the solids of plants, but only a little of them is stored in the animal body. Potatoes, wheat, poor hay, straw, and corn-stalks consist largely of carbohydrates.

*Fats* have more carbon than carbohydrates, and, like them, have no nitrogen. Fat meat, tallow, lard, fish oil, the fat (butter) of milk, and linseed oil are familiar examples of fats. Indian corn, oil-cake, cotton-seed and linseed, are rich in fatty matters.

### How Food is used in the Body.

We feed hay, grain, and roots to our stock that they may keep warm, grow, fatten, and return meat, milk, and work. That is to say, we supply them with albuminoids, carbohydrates, and fats, to make flesh and fat, bone and sinew, milk, and progeny, and to be consumed in generating heat and muscular strength. The animal body is often compared to a machine. This machine is peculiar, in that it is made of food, consumes its own materials for fuel, uses food for both fuel and repairs, and keeps running, wearing out, and warming, and repairing itself by use of food all the while, whether it does any other work or not.

### Meat, Milk, Warmth, and Strength from Albuminoids, Carbohydrates, and Fats.

The lean-meat (muscle), the casein (curd) of milk, and the albuminoids of the body generally, are made from the albuminoids of the food. A large part of the fat of the body and of the milk (butter) is made and must be made from albuminoids also. The fats of the food are stored in the body and find their way into the milk. It is probable that the carbohydrates can be transformed into fats in herbivorous animals and in swine, but it is very doubtful whether horses, cattle, and sheep get much fat from them. Part of the sugar of the milk comes from the sugar, starch, etc., of the food. Though the carbohydrates do so little to build up and repair the tissues, they are yet very essential. They act as fnel, and thus save the albuminoids and fats, whieh, without them, would be eonsumed. Doubtless all the ingredients join in producing heat and force, though we do not yet know just how they divide this work between them.

### Digestible Ingredients of Foods—Ratio of Albuminoids to Carbohydrates.

Of course only the digestible parts of the foods go to nourish the animal. The figures given in the comprehensive table herewith for the percentage of digestible matters, are calculated from the average results of, I should think, some twelve hundred or more experiments, such as have been described in previous articles, each one more aceurate and complete than any ever made in this country. The digestibility of some of the materials, as Hungarian grass, which have not been tested, is calculated from the known digestibility of similar foods. The figures obtained for German foods are applied to the corresponding American products. The "nutritive ratio" (in 10th column) expresses the ratio of digestible albuminoids to digestible carbohydrates and fats (each pound of fats being assumed equal to 2.5, or, more accurately, 2.44 lbs. of carbohydrates). This is an important practical matter. The reason why straw, with a ratio of 1:30, that is, only one pound of albuminoids to 30 lbs. of carbohydrates, is not worth as much as good hay with a ratio of 1:8, that is one pound of albuminoids to every eight pounds of carbohydrates, is not simply that the straw has less digestible matter, but that it has less albuminoids. The way to make it good, is to mix it with clover, bran, cotton-seed meal, meat-scrap, or fish-scrap, that have albuminoids in excess. Just this is done with great profit.

### The Money Values of Foods

in the table are calculated by assigning a certain price to each pound of digestible ingredients. The prices here are those given by Wolff for Germany in 1879, viz., albuminoids and fats each 4½ cents per pound, and carbohydrates $^9/_{10}$ cents per pound. They vary a little, but not widely, from the values in many of our markets. Of course, these values are only relative, and apply only when properly fed. Future investigations will lead to more acenrate calculations. The last colnmn shows how the foods compare with good meadow hay (English grasses) taken as a standard.

W. O. ATWATER,
*Wesleyan University, Middletown, Conn.*

**Average Composition, Digestibility, and Money-Value of Fodder Materials, according to Wolff's Tables for Germany, 1879. (American Products in Italics.)**

| FEEDING STUFFS. | Water. | Ash. | Organic Substance. Total. Albuminoids. | Woody fiber. | Carbohydrates. | Fats. | Organic Substance Digestible. Albuminoids. | Carbohydrates. | Fats. | Nutritive ratio. | Money value. Dollars per 100 pounds. | Comparison with meadow hay=1. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GREEN FODDER. | per ct. | per ct. | per ct. | per ct. | per ct. | per ct. | per ct. | per ct. | per ct. | 1: | $ cts. | |
| Rich pasture grass | 78.2 | 2.2 | 4.5 | 4.0 | 10.1 | 1.0 | 3.4 | 10.9 | 0.6 | 3.6 | 0.27 | 0.42 |
| Red Clover ready to blossom | 83.0 | 1.5 | 3.3 | 4.5 | 7.0 | 0.7 | 2.3 | 7.4 | 0.5 | 3.8 | 0.19 | 0.29 |
| Red Clover in full blossom | 80.4 | 1.3 | 3.0 | 5.8 | 8.9 | 0.6 | 1.7 | 8.7 | 0.4 | 5.7 | 0.17 | 0.26 |
| Fodder-corn | 85.0 | 1.0 | 1.2 | 4.7 | 7.6 | 0.5 | 0.7 | 7.4 | 0.2 | 11.3 | 0.10 | 0.16 |
| *Fodder-corn, So. white, old* | 86.0 | 0.8 | 0.8 | 4.8 | 7.3 | 0.3 | 0.6 | 8.3 | 0.2 | 14.4 | 0.09 | 0.14 |
| *Fodder-corn, do. younger* | 86.0 | 1.1 | 1.3 | 4.6 | 7.1 | 0.2 | 0.9 | 7.6 | 0.1 | 9.2 | 0.11 | 0.17 |
| Fodder-rye | 76.0 | 1.6 | 3.3 | 7.9 | 10.4 | 0.8 | 1.9 | 11 0 | 0.4 | 6 3 | 0.19 | 0.31 |
| *Hungarian grass, in blossom.* | 75.0 | 1.3 | 3.1 | 8.5 | 10.9 | 0.7 | 1.8 | 11.8 | 0.3 | 7.0 | 0.19 | 0.30 |
| HAY, STRAW, ETC. | | | | | | | | | | | | |
| Meadow-hay, inferior | 14.3 | 5.0 | 7.5 | 33.5 | 38.2 | 1.5 | 3.4 | 34.9 | 0.5 | 10.6 | 0.48 | 0.74 |
| Meadow-hay, average | 14.3 | 6.2 | 9.7 | 26.3 | 41.4 | 2.5 | 5.4 | 41.0 | 1.0 | 8.0 | 0.64 | 1.00 |
| Meadow-hay, extra | 16.0 | 7.7 | 13.5 | 19.3 | 40.4 | 3.0 | 9.2 | 42.8 | 1.5 | 5.1 | 0.84 | 1.32 |
| Timothy-hay, average | 14.3 | 4.5 | 9.7 | 22.7 | 45.8 | 3.0 | 5.8 | 48.4 | 1.4 | 8.1 | 0.69 | 1.09 |
| *Timothy-hay, ready to blossom* | 12.5 | 4.1 | 8.4 | 28.9 | 44.4 | 1.7 | 4.4 | 48.6 | 0.8 | 10.6 | 0.61 | 0.96 |
| *Timothy-hay, in full blossom.* | 12.5 | 3.8 | 6.2 | 29.1 | 47.1 | 1.2 | 3.1 | 42.0 | 0.4 | 13.2 | 0.51 | 0.80 |
| *Timothy-hay, nearly ripe* | 12.5 | 3.2 | 5.5 | 31.0 | 46.4 | 1.4 | 2.7 | 40.6 | 0.4 | 15.7 | 0.50 | 0.79 |
| Clover-hay, inferior | 15.0 | 5.1 | 11.1 | 28.9 | 47.7 | 2.1 | 5.7 | 37.9 | 1.0 | 7.1 | 0.58 | 0.91 |
| Clover-hay, average | 16.0 | 5.3 | 12.3 | 26.0 | 38.2 | 2.2 | 7.0 | 38.1 | 1.2 | 5.9 | 0.69 | 1.08 |
| Clover-hay, best | 16.5 | 7.0 | 15.3 | 22.2 | 35.8 | 3.2 | 0.7 | 37.6 | 2.1 | 4.0 | 0.88 | 1.39 |
| *Clover-hay, ready to blossom.* | 14.3 | 7.3 | 12.2 | 28.8 | 41.0 | 1.5 | 6.7 | 38.8 | 0.8 | 6.1 | 0.68 | 1.06 |
| *Clover-hay in full blossom* | 14.3 | 6.6 | 11.6 | 23.8 | 42.0 | 1.8 | 5.9 | 38.7 | 0.8 | 6.9 | 0.64 | 1.00 |
| *Clover-hay, nearly ripe* | 14.3 | 5.6 | 8.9 | 27.2 | 42.6 | 1.5 | 4.0 | 39.6 | 0.6 | 10.3 | 0.56 | 0.88 |
| *Hungarian, early in blossom.* | 16.7 | 7.2 | 10.7 | 28.9 | 34.8 | 1.7 | 6.0 | 38.4 | 0.7 | 6.7 | 0.63 | 0.98 |
| *Hungarian in full blossom* | 16.7 | 4.3 | 8.0 | 27.6 | 41.9 | 1.5 | 4.0 | 36.7 | 0.5 | 9.4 | 0.52 | 0 81 |
| *Corn-fodder, So. white, young* | 25.0 | 5.5 | 6.9 | 24.3 | 37.3 | 1.0 | 4.5 | 40.0 | 0.5 | 9.2 | 0.58 | 0.91 |
| *Corn-fodder, So. white, older* | 25.0 | 4.3 | 4 5 | 25.7 | 39.1 | 1.4 | 2.7 | 38.9 | 0.5 | 14.9 | 0.49 | 0.76 |
| *Wheat-straw* | 14.3 | 4.6 | 3.0 | 40 0 | 36.9 | 1.2 | 0.8 | 35.6 | 0.4 | 45.8 | 0.66 | 0.57 |
| Rye-straw | 14.3 | 4.1 | 3.0 | 44.0 | 33.3 | 1.3 | 0.8 | 36.5 | 0.4 | 46.9 | 0.35 | 0.55 |
| Oat straw | 14.3 | 4.0 | 4.0 | 39.5 | 36.2 | 2.0 | 1.4 | 40.1 | 0.7 | 29.9 | 0.44 | 0.69 |
| Corn-stalks | 15.0 | 4.2 | 3.0 | 40.0 | 36.7 | 1.0 | 1.4 | 37.0 | 0.8 | 34.4 | 0.39 | 0.62 |
| *Corn cobs* | 11.5 | 1.5 | 1.4 | 43.2 | 53.8 | 0.1 | ? | ? | ? | ? | ? | ? |
| TUBERS AND ROOTS. | | | | | | | | | | | | |
| Potatoes | 75.0 | 0.9 | 2.1 | 1.1 | 20.7 | 0.2 | 2.1 | 21.8 | 0.2 | 10.6 | 0.29 | 0.46 |
| Mangolds | 88.0 | 0.8 | 1.1 | 0.9 | 9.1 | 0.1 | 1.1 | 10.0 | 0.1 | 9.3 | 0.14 | 0.22 |
| Rutabagas | 87.0 | 1.0 | 1.3 | 1.1 | 9.5 | 0.1 | 1.3 | 10.6 | 0.1 | 8.3 | 0.15 | 0.24 |
| Sugar beets | 81.5 | 0.7 | 1.0 | 1.3 | 15.4 | 0.1 | 1.0 | 16.7 | 0.1 | 17.0 | 0.19 | 0.30 |
| Turnips | 92.0 | 0.7 | 1.1 | 0.8 | 5.3 | 0.1 | 1.1 | 6.1 | 0.1 | 5.8 | 0.10 | 0.16 |
| GRAINS, MILLING PRODUCTS, &c | | | | | | | | | | | | |
| *Corn, N. E. yellow, 8-rowed* | 12.7 | 1.4 | 10.0 | 1 7 | 75.0 | 3.9 | 8.4 | 66.8 | 2.8 | 8.8 | 1.04 | 1.62 |
| *Corn, Western* | 13.0 | 1.2 | 8.9 | 2.0 | 71.6 | 3.3 | 7.5 | 67.9 | 2.5 | 9.9 | 9.7 | 1.51 |
| *Corn, Southern white* | 12.7 | 1.4 | 9.7 | 1.8 | 71.2 | 3.2 | 8.2 | 67.6 | 2.4 | 9.1 | 1.04 | 1.62 |
| *Corn, sweet* | 10.8 | 2.1 | 11.4 | 3.8 | 64.3 | 7.7 | 9.6 | 16.8 | 5.9 | 8.0 | 1.19 | 1.86 |
| Oats | 14.3 | 2.7 | 12.0 | 9.3 | 55.7 | 6.0 | 9.0 | 43.3 | 4.7 | 6.1 | 0.98 | 1.53 |
| *Oats, No. 1 white* | 11.2 | 2.9 | 11.5 | 12.2 | 52.8 | 5.1 | 8.7 | 43.3 | 4.0 | 6.2 | 0.94 | 1.47 |
| *Barley-feed* | 9.98 | 3.8 | 12.7 | 7.0 | 63.5 | 3.2 | 10.1 | 57.1 | 2.1 | 6.2 | 1.05 | 1.64 |
| *Rice-feed* | 15.1 | 6.0 | 9.3 | 8.1 | 59.8 | 1.6 | 7.3 | 49.1 | 1.4 | 7.3 | 0.82 | 1.28 |
| *Wheat bran* (shorts) | 11.4 | 5.1 | 12.9 | 8.1 | 59.1 | 3.5 | 10.0 | 48.5 | 3.1 | 5.6 | 1.01 | 1.58 |
| *Middlings* | 11.8 | 2.8 | 11.4 | 4.8 | 66.8 | 2.9 | 8.9 | 54.8 | 2.6 | 6.9 | 1.00 | 1.56 |
| *Malt-sprouts* | 11.6 | 6.7 | 25.9 | 9.3 | 45.5 | 1.1 | 20.8 | 43.7 | 0.9 | 2.2 | 1.33 | 2.08 |
| Cotton-seed meal, decortic'd | 11.2 | 7.6 | 38.8 | 9.2 | 19.5 | 13.7 | 31.0 | 18.3 | 12.3 | 1.6 | 2.05 | 3.22 |
| Linseed-cake | 12.2 | 8.8 | 29.5 | 9.7 | 29.9 | 9.9 | 24.8 | 27.5 | 8.9 | 2.0 | 1.71 | 2.70 |
| Dried blood | 12.0 | 4.1 | 80 8 | .... | 2.6 | 0.5 | 54.1 | 2.6 | 0.5 | .... | 2.39 | 3.76 |
| Meat-scraps | 11.5 | 3.7 | 72.8 | .... | .... | 12.0 | 69.2 | .... | 11.2 | 0.4 | 3.52 | 5.47 |
| *Fish-scrap, Goodale's process.* | 11.5 | ... | 64.0 | .... | .... | 4.6 | 57.6 | .... | 4.1 | 0.2 | 2.67 | 4.17 |
| *Fish-scrap, dry, ground* | 11.7 | ... | 51.5 | .... | .... | 8.1 | 46.4 | .... | 6.2 | 0.3 | 2.28 | 3.56 |

[*This important table, based on averages of more than one thousand accurate feeding experiments, should be kept for reference. The first six columns give the number of pounds of ingredients in* 100 *lbs.; the 7th, 8th and 9th columns the amounts digestible, and hence nutritious; the* 10*th column the proportion of others to albuminoids; the* 11*th column the money value per* 100 *lbs.; the last column the value compared with good meadow hay (English grasses) as the standard.*—ED.]

## Editorial Correspondence From the Far West.

### The "Centennial State."

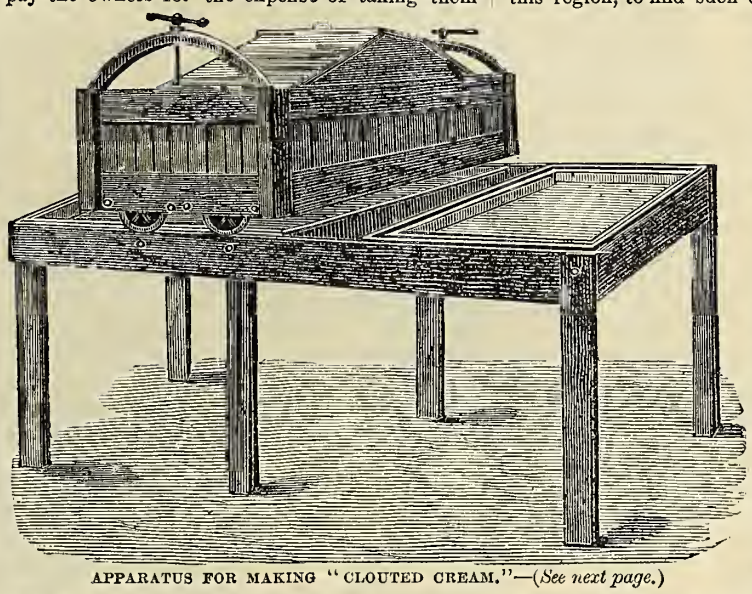
The wheat crop in Colorado is not so good as last year. The aggregate yield, however, is larger, because a considerably greater area was sown. Other crops have been good, and instead of having to draw upon Kansas and adjoining States to meet the wants of the people as in past years, Colorado has a surplus of cereal food this year over and above her home wants. Many mountain districts grow potatoes, oats, and rye, without irrigation. Mountain potatoes are richer than those grown in the valleys if the season is long enough for them to ripen. Some valleys, like a portion of the St. Lonis, produce without irrigation. As a general thing, however, Colorado farmers find that irrigation is necessary. Colorado promises to become one of the wealthiest States in the Union, owing to her gold and silver mines. The product of these mines for 1876 was computed at four millions of dollars; for 1877 at a little over six millions of dollars. After visiting the mining region, which is about fifty miles in width, and three hundred and fifty miles long, and after consulting with the best mining authorities in the State, I estimate the products of the Colorado mines for 1878 at nearly ten millions of dollars. The estimates are based on the amount of bullion shipped by express companies, and the amount of ores purchased by the agents of eastern parties. While heavy capitalists are working the more important mines, thousands of individuals, with little or no means, are mining on their own account and averaging very fair wages. Gulch mining is still carried on, though not to any great extent. Many of the miners work on what are called "Grub Stakes"—that is to say, after they have obtained a claim, some parties of means furnish them food and sustenance, they in turn dividing the product of their operations. Leadville is the latest theater of active mining operations. There is a great influx of gold seekers thither, and more excitement than has been seen in a Colorado mining region for many years. Three different railroads are extending branches to the Leadville mines, on the expectation that it is to be the great mining center of Colorado for some time to come. Owing to the rapid building of the Atchison, Topeka, and Santa Fe, and the Denver and Rio Grande Railroads, during the past year, Southern Colorado is rapidly developing, and the mines in the San Joan region are attracting many capitalists as well as individual miners. Sheep-growers are also occupying the plains down to the boundary line of New Mexico. One can form no idea of the rapidity with which this country is developing without coming here and making a tour of observation. Owing to the decline in the prices of wool and mutton, and to the snow storms, which proved so disastrous last winter, the sheep interests in some portions of the State are not as encouraging as they have been in the past. A considerable number of ranchmen have disposed of their flocks, and embarked in mining operations, attracted by the reports from Leadville, Silver Cliff, and other points. There is as much antagonism as ever between the cattle-growers and sheep-growers, and some of the former go so far as to maintain that the greater portion of Colorado was never intended for sheep-growing, because never safe during the winter months from fatal storms. There is generally a fall of snow early in the autumn. On October 25th, I encountered a heavy snow storm during a trip through the famous Veta Pass, to Alamoosa, the termination of the Denver and Rio Grande Railroad.

Denver City shows a great improvement over last year, when there was a general complaint of dull times. Now I am told that every building in the place is rented, and that there is a demand for more houses. One sees at Denver, Colorado Springs, and other points in the State, invalids far gone in consumption, who have delayed coming here until it is too late. There is no question but that people with pulmonary troubles are greatly benefited if they come to Colorado in time. It is a great mistake, however, for them to postpone their departure until too far gone to be benefited, and then come on to die among strangers. The Press of Colorado embraces journalists of decided ability, and there are newspapers in Denver which compare favorably with those of the more populous States. While game is disappearing on the plains, it is abundant in the mountain districts this fall and winter. Prof. Aughey and other scientists who have been spending some time in this region, tell me that the range, for example, which divides the North Park from the Middle Park is full of antelope, deer, elk and mountain sheep. The best hunting ground I have seen in Colorado is the North Park. The tourists who overrun the Middle and South Parks, do not, with few exceptions, make their way to the North Park. The game is consequently abundant, and not difficult to approach. In addition to elk and deer, and vast numbers of antelope, there are a few buffalo left here. An occasional rocky mountain lion is also seen.

### Utah.

The Mormons are generally good thrifty farmers, and satisfied to work a few acres and work them well. In northern Utah I have found many farmers who had only 40 acres of land. It is quite customary for them to live in villages, and have their farms scattered about in the adjoining country. The object of this has been to secure the protection of numbers. As the danger of Indian forays has diminished, they are beginning to move out upon their farms, to avoid going back and forth every day.

Large herds of cattle are raised in Utah, and driven eastward every year to Wyoming and Colorado, where they bring a sufficiently high price to pay the owners for the expense of taking them thither. I am told by individuals who have made these drives, that they are very enjoyable, abounding in incident and adventure. I know of no better opportunity for men in the older States who would like to spend a summer in the saddle, see the country and breathe the invigorating air of these western territories. They can come out here and either purchase cattle themselves, or hire out as drivers, and then work their way back eastward to Wyoming during the summer months, allowing the cattle to graze leisurely by the way, while they shoot and fish. I know of no more delightful mode of spending a season, when one wishes to exchange civilization for life on the plains, and seeks to combine business with pleasure. It is an excellent experience for young men who are worn down with study and confinement and seek physical recuperation. The population of Utah is receiving steady accessions from colonies of Mormons arriving from Europe. The network of railroads is extending all over the territory, and the farmers are soon promised a new market for their produce, by the rapid extension of the narrow gauge railroad through northern Utah, and Idaho, to the mountain regions of Montana. The new Mormon temple at Salt Lake City, is steadily progressing towards completion, and gives employment to a large number of workmen. A placard upon the walls, however, warns laborers not to flock hither from the country with the expectation of finding employment on the Temple, inasmuch as there are now more laborers than are wanted. Brigham Young, Jr., who, at the time of his father's death, it was generally supposed would succeed him, is now engaged in journalism, and editing some of the Church publications.



APPARATUS FOR MAKING "CLOUTED CREAM."—(*See next page.*)

### Minnesota.

Minnesota is making rapid strides in population and material progress. In travelling through the length and breadth of the State, I have witnessed prosperity on every side, and no State in the West appears to me to have a more magnificent future. During the past year there has been a heavy immigration into Minnesota. This is mainly due to the efforts of the State Board of Immigration and of the various railroads having land grants. Among the roads which possess these grants are the Chicago and North Western, the Northern Pacific, the St. Paul and Pacific, and the St. Paul and Sioux City. Some idea may be obtained of the extent of the immigration from the fact that the total sales of land by the Northern Pacific Railroad, for the fourteen months ending Nov. 1, 1878, were 911,859 acres. This will be an interesting item of information to the numerous holders of Northern Pacific Railroad bonds through the United States. When Jay Cooke so disastrously failed in 1873, this road became known as "Cooke's Folly," and everybody supposed that with his failure there would be a general collapse, not only of the railroad, but of things generally through Northern Minnesota. I have been agreeably surprised therefore in visiting this region, to find such evidences of growth and prosperity. Here in this far northern region there is, so to speak, a new world growing up, of which no one can form an adequate conception without visiting it. The original grant of the Northern Pacific comprised about 7,500,000 acres, lying between Duluth and Bismarck, which latter place is 488 miles west from Duluth, and is the present western terminus of the road. It has generally been supposed that the road will be constructed no further west. I learn, however, that the surveys have been made through Dakota with the intention of carrying the road on at an early date toward the Yellow Stone Park. Furthermore, surveys have also been made for a northern branch of the road extending from Fargo 253 miles west of Duluth, up through the Red River region to Manitoba. The St. Paul and Sioux City Road crosses with its main line the Northern Pacific at Glyndon, thus tapping the same region of country, and I should not be surprised to hear any day, that the two roads, both of which are in the hands of Receivers, were consolidated and made one corporation. In fact, it looks to me as though steps were already in progress to this end. This would be one of the most important railroad consolidations in the country. The St. Paul and Pacific Road, or the roads which comprise it, have large land grants. These lands have not yet been placed in the market. Some of them, like those of the Northern Pacific grant, produce splendid wheat crops, and in a comparatively few years this northwestern region promises to raise enough wheat to supply almost the entire country. In a previous letter I sent you estimates of the wheat crop of Minnesota for this year, which made it from ten to twelve millions of bushels. I am now satisfied, however, that these estimates were too low, and that the crop will amount to fifteen or seventeen millions of bushels. Were it not

for those terribly hot days in July, which dried up the wheat in Southern Minnesota, the crop would have approximated to sixty millions of bushels. The St. Paul and Sioux City Railroad, and the Sioux City and St. Paul, which are virtually one line, have together a total land grant in Minnesota and Iowa of about 1,492,000 acres. These lands average about $6.50 an acre. Most of the lands are well adapted to wheat. Many of the New England people are settling in Minnesota, and the great majority of the farmers are of the desirable class. When the St. Paul and Pacific Road is completed to Manitoba, there will be a large traffic opened between Minnesota and the British Possessions. Manitoba is being rapidly settled, owing to the encouragement and inducements which the Dominion Government holds out to immigrants.—A portion of this correspondence, describing the Colorado Sheep Ranches, is given on page 13 of this number.

## Notes From Deerfoot Farm.

This farm having become somewhat noted for its products, we present a few items of its operations, gathered on the premises, that will be suggestive, and of practical use to others. The farm shows what may be done by an educated man (a graduate of Harvard) who turns his whole thought, time and energy to farm operations. We have often claimed that a thorough education is just as important, just as useful to a farmer or business man as it is in the professions.

Deerfoot Farm is located in Southboro, Massachusetts, 25 miles westerly from Boston. It now comprises 350 acres, including some rented land, of which 160 acres are in pasture and 75 acres in meadow, which is mowed two and three times each season, the aim being to have all the hay rowen. In five years the yield has been increased from 75 to 200 tons. Some of this has been cleared of rocks at a cost of $200 per acre, and pays a good interest on the investment; 25 acres of meadow now being reclaimed, promises to make the finest grass field on the farm.——Of this farm 200 acres were owned by the elder Mr. Burnett from 1854 to 1871, who kept a herd of superior Jersey cows, but made farming secondary to his other business. Some seven years ago it was taken in hand by the present proprietor, Mr. EDWARD BURNETT, and the entire 350 acres is now mainly devoted to dairy and swine husbandry.

HEAD OF "DEERFOOT BOY," OF DEERFOOT FARM, SOUTHBORO, MASS.

The first year Mr. Burnett sold half a dozen surplus dressed pigs to some friends. Their superiority at once created a demand for more, which called for 30 pigs the second year; 75 the third; 200 the fourth; 600 the fifth; last year about 1,500; and this season between 2,000 and 3,000—which sell at prices nearly double the usual market rates. The chief "secret" of this success is: *First*, in killing pigs not exceeding 200 lbs. live weight, and not over ten months old—those from five to six months being preferred. *Second*, in feeding such food only as will make a firm, healthful flesh—and *Third*, in the killing, dressing and packing. The product is really "pig pork"—very different from common and coarse hog-pork, so often raised upon unclean slops and offal, in the midst of filth and discomfort. About 350 of this season's pigs were raised upon the farm, and the rest came mainly from dairy farms in Vermont and Western Massachusetts, where they were grown specially for this place. They are chiefly Berkshire and small Yorkshire, valued for the superiority of their side sand shoulders. The Essex and Suffolk breeds mature so quickly, that they are too fat for the special use of this farm. The young pigs are fed either with skim-milk, or bran, with one-third oatmeal, but have no concentrated food. They run a good deal in the pasture. At five months, they are given three parts corn meal and one part oat meal cooked to a thick mush. Any purchased pigs found not to be corn-fed, shown by their flabbiness of flesh, are sold in the local markets at ordinary prices. The slaughter-house is as clean as a dairy, and the work is done quietly and systematically. The dressed carcasses hang 48 hours in a large refrigerator before being cut up. The salted pork is put into scalded brine in neat kegs, holding 15, 25, 50 and 100 pounds each, for family and hotel use. The pure kettle-rendered lard from this establishment is a superior article, free from the impurities and foreign substances incorporated with much of the lard sold in the general market. The chines and spare-ribs are shipped fresh to the consumer. The "little sausages" are made from choice parts, such as bits of the chine, shoulders, spare-ribs, etc. Most of the parts that ordinarily go into sausages, here go into soap-grease. Great care is taken to use only the best quality of spices. We have tried the sausages several times, and found them excellent, though not lovers of the article as usually made. "Deerfoot Breakfast Bacon," is another popular product, and the regular demand for it far exceeds the supply. The sides, hams, and jowls, are hand-rubbed with the best salt, sugar, and saltpetre, and turned daily for a month, and then exposed to smoke from green hickory, admitted cool through sub-earth flues. They are sent to market in canvas bags. All the buildings of the farm are simply constructed, at comparatively small expense, and with an eye to profit.

Though the Pork business is a marked feature, and stands as a new departure in this line on a large scale, the Dairy is an important part of Deerfoot farm, as it has produced about 10,000 pounds of high quality butter in a single year. The cows are Jerseys, with a few grades and natives, some of the former being remarkable for their large yields. "Patty" gave 19 quarts of milk per day at 3 years old; "Deerfoot Maid" gave 38 to 39 pounds a day at 4 years old, and another cow yielded 8,532 pounds of milk during 1877 (the largest yield on record we believe), from which 400 pounds of butter were made. A likeness of "Deerfoot Boy," which stands at the head of the herd, is shown in the engraving herewith. The dairy rooms are models of neatness, compactness, and convenience.

Mr. Burnett gives us his method of making butter: "I set the milk 24 hours in tanks, in ice-water, at 45°, then skim and put it away to 'ripen,' letting it turn slightly, which generally takes 48 hours. We churn in summer at 54° to 56°, and in Winter at 60° to 62°, using the old-fashioned barrel churn. When the butter has gathered in grains about the size of large peas, the butter-milk is drawn off and the butter rinsed two or three times with weak brine at a temperature according to the season. It is then worked rapidly with the "Walker Roller," and dried with sponges, and 3 ounces of double refined Liverpool salt added to every 10 lbs. It stands 4 to 5 hours for the salt to dissolve and is again worked rapidly a few times. It is then made into 1 lb. packages, put into tightly covered tin boxes and placed in the refrigerator. Next morning each lump is wrapped in a muslin napkin, previously rinsed in brine, and is ready for market.

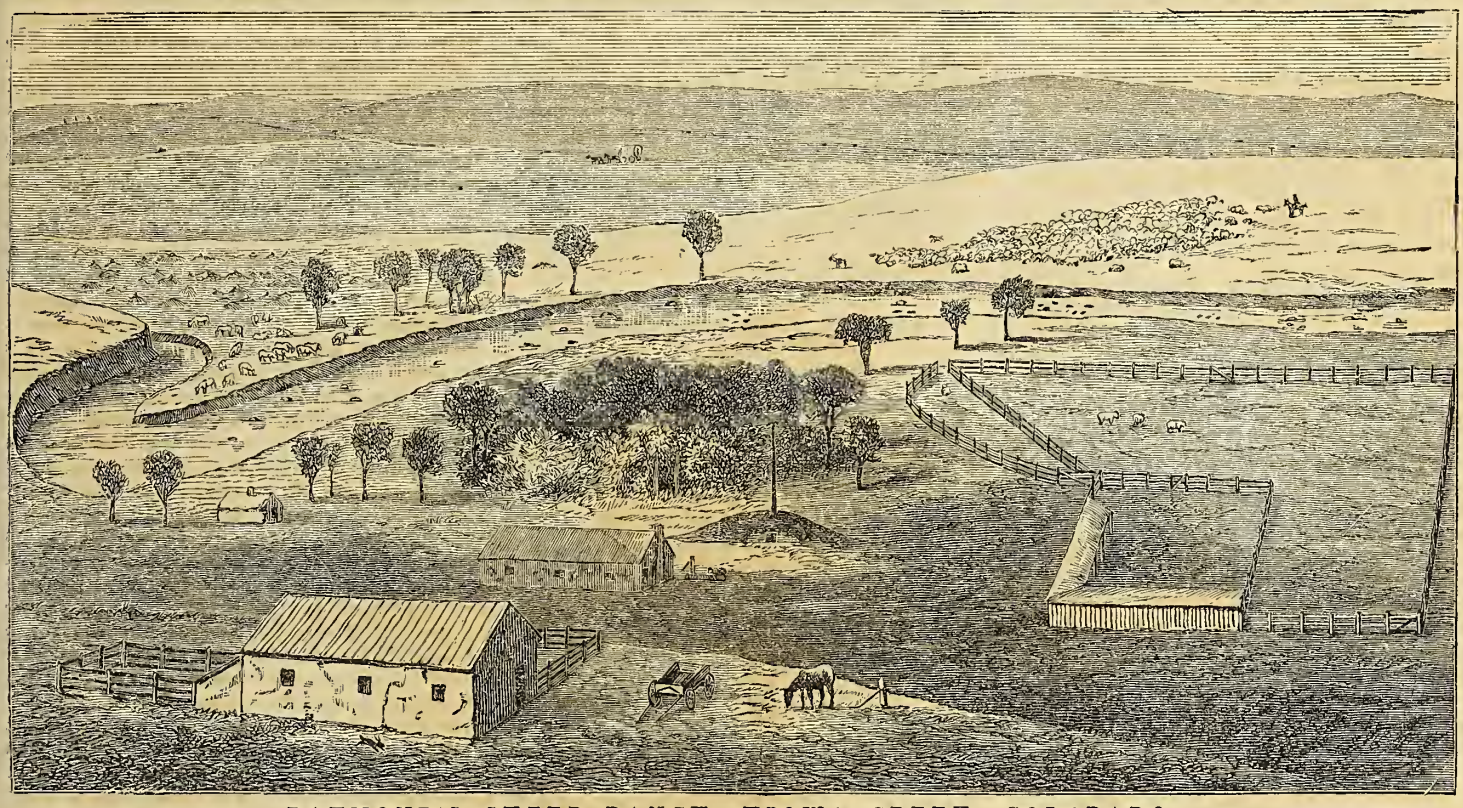
Experiments are in progress to test a use for the the cream, comparatively new in this country. The milk is set in shallow pans and immediately heated to 160 deg., and then covered by a long box holding two large galvanized-iron tubes filled with ice and salt, which cool the milk rapidly to near the freezing point (see previous page). This process gives the "clouted cream," which is so stiff, that a spoon will stand upright in it. So far the experiment is successful; the cream in this form being sold to city families and hotels at a high price.

The large herd of cows and the numerous hogs, consume all the field crops of the farm, besides about $5,000 worth of grain, purchased annually. The large amount of manure produced is rapidly increasing the fertility of the farm; the whole of which was top-dressed with fine manure last fall. A steam boiler and engine drives the machinery of the slaughter house, and a pipe carries steam thence to a small engine in the dairy, to run the churn and heat the water. A book-keeper attends to the accounts, and the whole farm is run on business principles. Mr. Burnett has built up this business by his energy and ability. He loves his work, and is well satisfied with having turned his college education into this channel. He has spent much time, money and thought in experiments, but invites any of his brother farmers to visit and inspect his work and methods, and freely adopt anything they can find useful for their own practice.

**Our native Asters** are so common everywhere in the autumn months that they are rarely cultivated in our gardens, though they are highly prized abroad where they are known, in England at least as "Michaelmas Daisies." English horticulturists get quite enthusiastic over them, and so would our growers, did they cost a dollar a plant, instead of only the trouble of digging. The New England Aster (*Aster Novæ-Angliæ*) is one of the showiest, with large flowers with rich purple rays, and we have found its rose-colored variety a very fine border plant. *Aster ptarmicoides* is a fine species, with pure white small flowers, excellent for large bouquets. According to Vilmorin, these Asters are readily raised from seed, and, what is not usual with the perennial plants, they flower the first year,

## Among the Colorado Sheep Ranches.

Leaving Kiowa, a Kansas and Pacific Railway Station, 31 miles east of Denver, we drove 8 miles over the plains in a buck-board wagon, reaching Col. W. Raymond's well known ranch at the close of a lovely October day. We were warmly welcomed by the proprietor and his young wife, who, having finished her school days in New York, had come two thousand miles to grace a ranchman's home. There is a novelty and charm about this life which attract very many from the older States, and one is constantly discovering in the rough herder's garb, men of education and culture. They are fond of the freedom and exhilaration of this mode of existence, which also promises health, wealth, and adventure. Very many of the herders or hired men are fresh from college; youths who are serving their apprenticeship in the occupation of sheep-raising. Others come here from the Eastern and Middle States to engage in mining operations. They are unsuccessful, become straightened for money, and take to herding because herders are in demand. Their wages vary from $15.00 to $30.00 a month and board, according to capacity and experience. Many not only remain with their sheep during the day, but sleep near them in the corrals at night, as a protection against wolves. On three successive nights since we have been here, these wolves have made a descent upon the corral, killing several lambs. In the early days of Colorado sheep-raising, the herders were accustomed to camp with their flocks wherever night overtook them. This, however, was found to be a dangerous practice, inasmuch as the sudden storms of the Colorado plains would blind and scatter the sheep, and often lead to great loss. Sheep invariably go before a storm. Sometimes they can not be checked, but will push on to certain destruction. We recall one instance where three thousand sheep in southern Colorado, overtaken at night by a sudden storm, blindly followed their leader over a precipice, and perished in the waters below, not one escaping. Now the ranchmen have their sheep corralled at sunset, instead of keeping them out on the plains. In the engraving the sheep are represented as coming in for the night. Though generally manifesting but little intelligence, they invariably display much sagacity in wending their way toward the corral, which they know will afford them protection against wolves, and keep them warm and comfortable. The sheep soon come to know the herders, and manifest as much affection for them as sheep are capable of. It is not well, however, to have them become too tame, because they hang back and do not drive well. The thrifty owner has his sheep out of the corral and upon the plains by daylight. They feed until about 10 o'clock, then "bunch up," or form a compact mass, until 4 o'clock, and from then they feed until driven in at dark. They eat gramma, buffalo, wire, and bunch grass. Wild hay is cut and stacked for feeding in winter, so that they may not want for food should there be a heavy fall of snow. The herders generally have horses of their own, which subsist on prairie grass, are very much attached to their owners, and become wonderfully skilled in managing sheep. Give them the rein and they will gather in and keep the flock together with as much dexterity as the shepherd's dog who accompanies them. The dog is an essential part of the "outfit," being a companion to his owner, and exercising a constant vigilance for the safety of the flock. Herder, horse, dog, and sheep together make a very picturesque appearance as they move over the plains.



RAYMOND'S SHEEP RANCH, KIOWA CREEK, COLORADO.

The flocks, comprising Mexican sheep and their increase from Merino bucks, generally number from 1,000 to 3,000. During the winter the larger flocks are generally divided in order to insure better feeding and better protection. One herder can readily manage 2,500 sheep, but he has to have his wits about him constantly. The leader of a flock is generally a Mexican goat, whose prowess is recognized by the whole herd, and whose prominent figure enables him to be easily seen both by the sheep and the herder. In the accompanying engraving there is seen heading the sheep, the famous "stag" Christo. This venerable goat has a history. He was brought from New Mexico many years ago, has been a leader for several different flocks, and now in his old age, though so decrepid as to travel at times with difficulty, has no idea of surrendering his leadership, but is invariably found at the front when necessary. The whole expression of his countenance, his dignified bearing, even his walk and the firm manner in which he plants his front feet, indicate that he realizes his responsibility and feels his importance. Old Christo shows an intelligence at times which is little less than human. For example, he snuffs the approach of wolves from afar, and often, when the unsuspecting sheep and lambs about him are sleeping in fancied security, he wakes the ranchman to make known the approach of the enemy. When no herders were sleeping with the sheep, he has recently, upon two occasions, taken the entire flock around the ranchman's house in the middle of the night to arouse him and secure protection from the advancing wolves. Christo, who is twenty-four years of age, will probably be gathered to his fathers this year, and he has so strong a hold upon the affections of his present owner, that he will be buried with due honors.

The Mexican sheep, as a general thing, are purchased about the first of October. The bucks are turned in with them in December, and the lambing season begins about the middle of May. Shearing begins about the first of June. The Mexican sheep shear from two to four pounds, and improved sheep from four to eight pounds. Of course there are exceptions; for example:—The Willard Bros., at their shearing-match last year, clipped thirty-two and one half pounds of wool from one Vermont ram, which brought twenty cents a pound. In shearing sheep great care must be exercised not to begin too early, on account of late storms. The shearers are paid from five to eight cents a sheep for their work. One man can shear from twenty to seventy sheep in a day. Mexican wool brought last year from sixteen to twenty cents a pound (prices are much less this year), according to the absence or presence of "kemp," a hairy, valueless substance. As sheep improve, the quantity of kemp gradually diminishes. The fleece of the native Mexican sheep is a coarse carpet wool, but as the flocks are improved by the introduction of Merino bucks, the quality of the wool is improved, until many of the ranchmen now claim that it is fully as good as that grown in the Eastern States. They further maintain that when their improved sheep become disassociated in the public mind from the native Mexicans, their wool will justly command as good a price as is paid for Eastern fleece. Owing to the scarcity of water, sheep are rarely washed in Colorado, and it is stated that many tons of dirt are annually shipped east in the Colorado fleece. Until recently, the ranchmen disposed of their wool to local dealers and agents. Two years ago they began to consign it to New York, Boston, Philadelphia, Hartford, and other Eastern houses.—The main disease among the sheep is scab, which is due, like the itch in man, to a minute mite, and may be communicated from one animal to another. The treatment is, to dip the sheep in some liquid that will destroy the parasite;

the dipping apparatus costing from $50 to $100. The principal dip is composed of tobacco, sulphur, and sometimes arsenic and soap. Three men can dip twenty-five hundred sheep a day. Scab does not affect the wool itself, but causes the sheep to lose wool, often to a considerable extent.

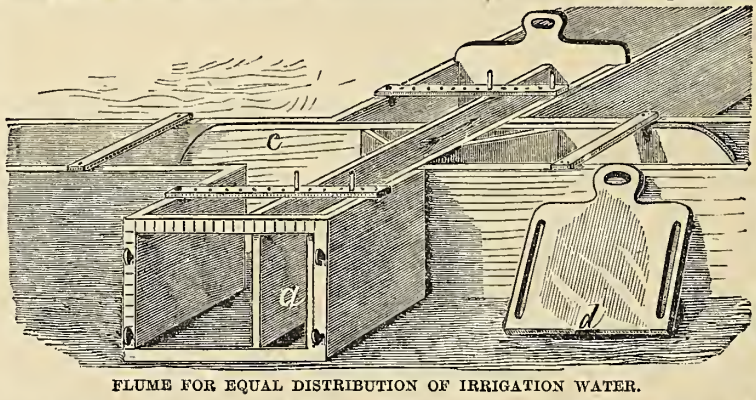
While sheep-raising presents so many attractions, it is no child's play, as many coming here from the East learn to their sorrow. Drones cannot succeed in this better than in any other business. Money, muscle, and brains are required to achieve success, and the idea that owners can live in the East, and safely trust their flocks to the management of others here, has been rudely dispelled. One has got to be upon the ground, and superintend his own ranching operations, if he expects to prosper. Upon coming to Colorado, to engage in sheep-raising, a man should hire himself out as a herder, in order to learn the details. No man should embark in the business, until he has had some experience. He should be here during the three seasons, that is: lambing, shearing, and dipping. At the end of that time he will have a very fair insight into the workings, although it would be advisable for him to pass a winter here, and have an experience with one of the heavy storms. He must not take the advice of any one man, but form his judgment after conversing with various sheep-raisers. He must expect to invest not merely money, but his time and brains. He must expect to give his personal attention to the business, not simply for one or two years, but for five or ten years, until he gets his herd sufficiently well graded, to bring in a fair income from wool. He will find the stories of ranchmen to differ in many particulars. Two years ago five thousand dollars was regarded as the usual amount required in purchasing a complete sheep "outfit,"—that is—a ranch, horses, dog, sheep, and bucks. He should start with about one thousand Mexican sheep, which can be purchased of dealers at Denver, and almost anywhere else. They sold two years ago for two dollars to two and one-half dollars each. They can be purchased this autumn for from ninety cents to one dollar and fifty cents each. The Vermont bucks will cost him from twenty to fifty dollars apiece. There should be one buck for every fifty sheep.

He will not be required to pay anything for his land, which belongs to the Government. Generally the buildings and ranch franchise can be purchased of some one, who, for various reasons, wishes to make a change. If the new comer locates on a new range, he will have to build a dug-out or an adobe house, and must have a wagon, a span of horses, and a shepherd dog. The corral with accompanying shed, should be built as soon as possible. If he has his family with him, he should purchase the needed household furniture here. The rates of freight are so high, that as few effects as possible should be brought from the East. He should employ a herder to watch the flocks, while he himself keeps close guard over the bucks. He must make up his mind to be absent from the ranch only a few hours at a time during any season.

In selecting a range, wood and water are the great essentials. It is for this reason that the ranches through Colorado and the other Western States and Territories are generally located along the streams and river bottoms. Some of these streams are very treacherous. For example:—Kiowa Creek, running by the ranch in which we are now writing, contains very little water in the summer, and is apparently a harmless river-bed. There are times, however, when it swells into a roaring torrent, carrying everything before it. One evening, last May, while Col. Raymond and his herders were sitting around the big fireside, a noise was suddenly heard, outside, like the rushing of many waters. Quickly opening the door, they plunged into water, and found torrents rushing through the corral. They had barely time to tear down the boards and get the sheep upon higher ground. Nearly all the lambs, amounting to several hundred, were carried down stream and perished. This water-spout, for such it proved to be, swept over the plains for a long distance each side of the Creek, carrying off sheep, cattle, ranches, trees, etc., and destroying valuable pasture-lands by covering them with a thick coating of sand and drift-wood. A short distance below here, the railroad bridge over the Kiowa Creek was swept away. An unwarned freight train soon after came rushing along. The empty cars floated down stream, but the engine has not been found to this day. Gangs of men are still searching for it in the quick sand with long, iron poles. A party of laborers came all the way from Lawrence, six hundred miles distant, to "fish" up the ill-fated engine, and expected to remain only ten days. They are still at work now five months after the accident occurred. This is as remarkable an occurence as the fall and disappearance of a section of the railway bridge at Omaha, a year ago. Water-spouts are of rare occurrence, but they are one of the things which a new-comer should have in view when locating his ranch. The little grove of trees seen in the engraving, are cotton-wood. This is the only thrifty tree that grows spontaneously on the plains. In addition to the wood which they supply, these cotton-wood groves afford a protection from the snow, and break the force of storms. The buildings here are made of adobe, viz., sun-baked mud. They are substantial, comfortable, and supply the place of frame houses, which are expensive, owing to the high price of timber. The dug-out in the background, was the original home of the "founder" of the ranch. It is not an uncommon thing to find a family recently from the East, temporarily occupying a dug-out, and having with them a piano and other evidences of culture and refinement.

## A Measuring Flume for Irrigating.

The division of water flowing in irrigating ditches, sometimes gives rise to dispute, especially where water is the prime necessity of life, as is the case when agriculture is wholly dependent upon irrigation. To divide a stream flowing into lateral canals, so that it may be known exactly how much water is flowing on to any field or given area, is also frequently desirable. The following method of dividing and measuring a stream is simple and effective. A flume of any desired size, is fitted in the main secondary channel, and a scale of inches marked upon the sides and the top as shown in the engraving. A sliding gate, fitted with set screws which work in a slot upon each side, regulates the quantity of water admitted into the flume. The water is divided by means of a sliding gate, *a*, which is held in place by pegs as indicated, so that it may not be moved by the pressure of water flowing through it, and diverted by it into the lateral channel. The sliding gate is set to deliver the quantity of water required by means of the scale of inches upon the upper bar of the inlet flume. The remainder of



FLUME FOR EQUAL DISTRIBUTION OF IRRIGATION WATER.

the water passes directly onwards through the flume, or it may diverted wholly or in part by means of the gate *c*, and a second sliding gate, upon the other side, made like, and operating in the same way as the first. The effect will be as follows. A square foot of water, more or less, is flowing through the opening of the flume, which is at the front of the cut. By lowering the gate fitted into this opening, (shown at one side at *d*,) the quantity of water may be reduced to as many inches as are required to pass through. This stream may be equally divided into the three channels, by placing the sliding gates, one at 4 and the other at 8 inches, as marked on the top of the frame of the flume. This is shown in the engraving. If the whole of the water is wanted in one lateral, the slide is drawn over to the opposite side and the whole stream is diverted. If no water is wanted in the laterals, both the slides are shut, and the whole stream flows in the direction of the arrow. The flume should be made of 1½-inch plank for a large size, and of inch boards for a smaller one. A corner block should be set in each angle of the slides to strengthen them. A flume somewhat similar to this has been in use at Greeley, Colorado, for some years, with much satisfaction to the parties concerned in a just division of the water.

## Among the Farmers.—No. 36.

BY ONE OF THEM.

### Cow-Peas for Horses.

We had two patches of cow-peas. The season was peculiar. They made less haulm than usual, and much fruit. They were sown broadcast to plow in as green manure, but I wanted to try the experiment of making "pea-vine hay," which we read about in Southern papers. So a few square rods were mown and cured. The shrinkage was enormous, yet the yield of hay probably equalled two and a half tons to the acre, on very poor gravelly land. Both horses and cows eat it well. One of the patches was plowed in and rye sown; the other was on land which became so hard during the drouth, that we could not well plow it, and when the seed began to ripen, we let it go, and after a while turned the colts upon it. There was perhaps an acre in the piece, and the leaves had nearly all fallen off before they found out that the peas were good to eat. They have had all they wanted and grass besides for three weeks, and are as fat as pigs. I have never seen young things grow so before. With a little painstaking, early ripening kinds might be introduced which would give us a crop every year. I would like to experiment with different sorts with reference to early ripening and to abundance of haulm for green manure. Both qualities would hardly be found superior in the same variety. That which I used this year, was the "clay" pea.

The use of this word "pea," which is universal where the plant is well known, is likely to mislead those not familiar with it, for it is more like a bean, and, like beans, is sensitive to spring frosts and cold. If sown too early, it will rot in the ground, or "live at a poor dying rate," until hot weather comes, and not do well then. So it must needs be planted during the last half of May to the first of June or later, in the latitude of May frosts.

**Webb's New Kinver Yellow Globe Mangel** has everything in its favor except color. It is, however, of a bright rich yellow on the out-side.—I like a good deal of color inside of a mangel, which this has not; nevertheless it is perfect in form—globular-top-shaped, I should say, with so little top, and of course equally little neck, or no neck at all, that one wonders that so little foliage can sustain so much root and such vigorous growth; for I suppose it is as true that the top sustains the root, in all senses but one, as that the root does the top. It is a great cropper, very firm, sound, and sweet. For a new kind it sports very little—wagon-load after wagon-load showing surprisingly few specimens which indicated a departure from the normal form. They were sown in drills, ridged up over a fair quantity of good yard-manure, or superphosphate where the manure failed.

### Sheep and Barbed Wire Fences.

It seems as if the use of barbed-wire fencing was going to make it possible, and if possible—policy, for us to keep sheep. It will not do, however, to turn the sheep into fields enclosed in whole or

in part with barbed wire, at this time of the year. Their wool is so thick and long that they do not feel the barbs, which thus only serve to tear out the wool. The thing to do is to put the sheep into such lots in the early summer, when they soon contract a wholesome dread of the fence, and will keep away from it thereafter. With other animals, the only thing necessary is is to let them once get acquainted with its general appearance and the results of too close contact with it. If it be really true that sheep may be conveniently controlled in this way, I see no reason why a radical change in the agriculture of some of the older States may not result. Sheep require very little labor in their management, little shelter, coarse food, straw, weedy hay, and roots, with a little corn, best fed unground. There is always a market for lambs, and for fat mutton; the wool and the skins sell also; but after all, the best thing about sheep-keeping is the facility with which straw, stalks, swamp hay, and other vegetable substances may be converted into manure. Speaking of

**Changes in Agricultural Practice,**

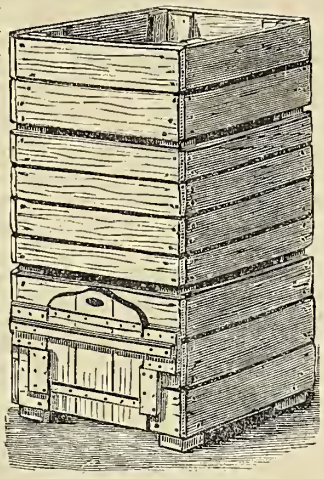
none is greater than that effected by the handling of milk in great quantities by cheese factories, butter factories, and creameries. These are extending with great rapidity all over the country, relieving the farmers' wives from untold drudgery, while their habits of industry find for them full employment in other ways. Among other things to which my attention has been particularly directed, is

**The Use of Skimmed Milk.**

This is much better and more wholesome food than most of us who have been brought up in the country, and upon plenty of milk, are apt to think, and until they learn better, city-folks, of all others, have a horror of skimmed milk. Milk disagrees with a great many people. If they drink it, pure and fresh, it gives heart-burn, and other forms of indigestion, headache, etc. Even children, frequently, can not drink it freely. The number who can not take as much skimmed milk as they are inclined to is very small. The now common plan of using deep coolers, or 15 to 18-quart pails, which are tall and narrow, and kept nearly submerged in cold spring water until ready to be skimmed, which is within 24 to 36 hours usually, gives an abundance of sweet skimmed milk. If either of the air-tight systems, Cooley's or Hardin's, be followed, the skimmed milk and cream may be separated in 8 to 12 hours, and the milk from having been excluded from the air is found to be sweeter (because of the presence of sugar) than even milk fresh from the cow. Milk is slightly alkaline when first drawn, from the presence of less than a tenth of one per cent of free soda. The action of the air is to rapidly convert the milk-sugar into milk-acid, and this of course neutralizes the alkali; then, the formation of acid still going on (more slowly as the milk cools), after awhile it loses its sweet taste, and before long is perceptibly sour. We are used to seeing and tasting skimmed milk between the loss of its sweetness and the time when it becomes positively sour. Excluded from the air, this chemical action can not go on. When, therefore, the cream is removed, the full taste of the sugar may be better observed, and so it seems actually sweeter than at first. Such "skim-milk" ought to be retailed at half the price of "whole milk" in all of our cities, and it would furnish a most admirable article of diet for families with moderate means. [In some cities the sale of skimmed milk is prohibited. EDS.]

**Keeping Potatoes Through the Winter.**

In cold weather, when the temperature can be regulated, potatoes keep well enough, but in warm cellars, or during warm spells, I find it difficult to prevent their starting, and we have to rub off the sprouts. I saw at Dr. Hexamer's, a few weeks ago, a contrivance which it seems strange has never been described and figured by the agricultural papers. The doctor takes any old boards or strips, and with them makes little bottomless bins about 2½ feet to 3 feet square, and 2 feet high—at any rate, large enough to hold 5 bushels with tolerable accuracy. The corner pieces project an inch below the lowermost strip, and fall short the same amount at the top. Three of these bins constitute a set; two of them are alike, but the one to go on the bottom has a bottom to it, and a cheaply made slide-door on one side. When the potatoes are harvested, these bins are filled, the bottom one first of course; then another is set upon the top and filled, and so on. Thus 15 bushels are held in a very compact space, and yet the air passes freely through them. These sets of bins are placed side by side with the sliding-doors accessible. Now when the potatoes need stirring—which they do once in a few weeks, and oftener towards spring—all that it is necessary to do is to raise the door, and take a bushel-basketful out from the bottom and put it upon the top. Thus every potato in the whole bin is turned, and its relations to air and moisture more or less varied—at least, enough to stop or greatly to interfere with the first beginnings of sprouting.



TO VENTILATE POTATOES.

When necessary, the whole stock may be conveniently "overhauled" and picked over, one set of bins at a time. In such bins different sorts are conveniently separated and kept distinct, and any kind or all are accessible at any time, and whenever bins are emptied they may be removed and space gained for other things. Smaller bins for the same purpose hold about one barrel each.

**Crushed Grain for Horses.**

Oats are justly advocated as the grain above all others adapted to horses—and it is true, that for young horses, and those used on the road, there is probably nothing equal to oats, but they ought to be crushed or bruised and not ground. In fact, I think all grains are better fed in this way, and it seems strange that there are no good American oat crushers. They seem to me simple affairs—as I have seen them in English stables. A wheel of perhaps 18 inches diameter, made strong, and having a perfectly flat periphery, of steel, I presume, like a steel tire, having a face about 3 inches wide, is turned so as to bear evenly against a smaller one of say 8 inches or less in diameter, having a similar face. These two wheels are geared to turn together, and the oats are slowly fed in by a hopper. Good oats, when crushed, are nearly round and as big as a silver 3-cent piece, and the husks are quite inconspicuous; poor ones show more husk than grain, and retain more nearly the form of the uncrushed oat. Barley may be crushed equally well with oats, although harder; and corn, when too green to grind, might well be thus treated. If grain be swallowed whole it is not easily digested, but if crushed, or broken even, it is likely to be. "Coarse meal," that is, the corn-meal usually sold for feeding in many Eastern towns, simply because it can be cheaply produced, is better than whole corn, because it is broken and some portion of it tolerably fine, but all the flinty part is in large solid pieces, which do not adhere to cut hay, do not soak quickly, and are slow of digestion. When new corn is crushed, although it is not comminuted into meal, its integrity is destroyed and is easily digested, because it readily absorbs water or the juices of the stomach.

**Value of Turnips.**—A Connecticut farmer estimates the value of turnips [the flat English turnip in his case,] as a food for milch cows at 25 cents per bushel. He arrived at these figures by noting the diminished yield consequent upon leaving off the feed of turnips. The roots did not save the hay, as quite as much was consumed with as without them; but the turnips, as also shown by European experiments, were an aid to the digestion of the hay and similar fodder. Succulent roots of any kind, make up for other deficiencies of hay and grain, and render the whole ration more like the natural summer food, keeping the digestive apparatus healthy and active, and a relish to the drier food.

## The Practice of Veterinary Medicine—Will it Pay?

BY A. LIAUTARD, M. D., V. S.

The attention of our people has been directed, within the past few years, towards Veterinary Medicine; many able writers have urged its importance and have presented the claims of this much neglected profession. Yet, notwithstanding this, young men of good education and social position hesitate to join the ranks of the veterinarians, and the number of skilled practitioners remains far short of the needs of the community. Young men are deterred from becoming veterinary practioners, in part, because of the low standing of some who claim to belong to the profession, and in part because the prospect of present success and an ultimate competence, if not a fortune, is not satisfactory. The importance of veterinary science to the agriculturist generally, and to the stock raiser especially, its relations to farm economy and to national health have been forcibly presented, and in a manner to direct young men towards its study. But these have not been sufficient. We are a matter-of-fact people, and while we are as ready as any other to admit the claims of science or art, and fully appreciate and recognize the importance of veterinary science, we are also ready to ask—*Will it pay?* This is an important question, especially to a young man who is considering the selection of an occupation or profession for life, and it is very proper, in considering the veterinary, or any other profession with a view to making it his life's work, that he should ask, "*Can I make a living by it?*" While this may seem to the pure scientist a material view to take, it is one that in this work-day world must be taken, and the question is a very proper one.

It is to attempt to reply to this question that this article is written. The best method of showing what may be done is to point out what has already been accomplished. Not long ago I addressed a letter to several veterinarians, all of whom are graduates of the American Veterinary College, who have been engaged in practice, some for several years, and others for a few months. The object of this letter was to obtain such statistics as might be of use to those who are considering whether they shall become veterinary surgeons, and, by showing what others have done, give them, so far as possible, some idea of their own future prospects.

| *States where the gentlemans practising.* | *When grad-uated.* | *How long in Practice.* | *Returns from Practice in the* | | |
|---|---|---|---|---|---|
| | | | *First Year.* | *Second Year.* | *Third Year.* |
| Penn'a. | 1874 | 4½ yr's. | $475 | $530 | $650 * |
| Rhode I. | 1877 | 17 mos. | $600 | $75 a m'th. | ..... |
| Penn'a. | 1874 | 4½ yr's. | $1500 | $2000 | .....† |
| N. Jers'y | 1878 | few mo. | $60 to 75 mo. | ..... | ..... |
| N. York. | 1867 | sev'l y's. | $4000 to 6000 yr. | $4000 to 6000 | $4000 to 6000 |
| N. York. | 1878 | few mo. | $100 to 150 mo. | $100 to 150 m | ..... |
| N. Jers'y | 1878 | few mo. | $300 | ..... | .....‡ |
| Mass'ts. | 1878 | few mo. | $75 to 160 mo. | ..... | ..... |
| N. York. | 1876 | 2½ yr's. | $1800 | $1600 | $1000 6 m's. |
| N. Jers'y | 1876 | 2½ yr's. | $600 | $1554 | $2200 § |
| N. York. | 1871 | 4 years. | $800 to 900 | $800 to 900 | $800 to 900 ‖ |
| Mass'ts. | 1877 | 19 mos. | $2000 | $2000 | $2000 ¶ |
| Maryl'd. | 1876 | 2 years. | $700 | $1000 | ..... |
| N. York. | 1878 | few mo. | $125 to 150 mo. | ..... | ..... |
| Mass'ts. | 1876 | 2½ yr's. | $1000 to 1500 yr. | $1000 to 1500 | $1500 ** |
| Ohio. | 1874 | 4 years. | $1200 | $1200 | $1200 ** |
| N. York. | 1875 | 3 years. | $300 | $500 | $800 |

Among the questions was one asking if the person had any regret at having adopted the profession, but as the answers to this was invariably "no," we omit that column.

* Subsequent years. $1,480 to $1,530. Expect to double it as soon as general trade is better. † Now in partnership, expect to make it $2,500 to $3,000. ‡ Regrets he did not qualify sooner. § Well pleased. ‖ With increasing profit, proud of it. ¶ Would not change for an M. D. ** In partnership.

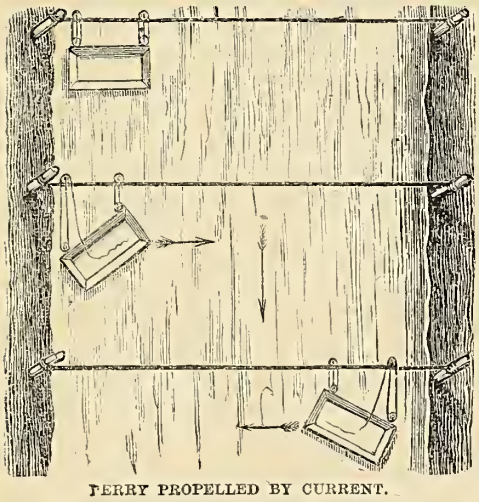
A few of the answers to this letter—enough to show their tenor and scope—are here condensed into the form of a table, which may be carefully considered by those young men who hesitate to enter the veterinary profession for fear it may not pay. What profession, what trade, what occupation of any kind, can offer to a young man better inducements than this table shows? This whole country, with costly and valuable stock in every direction, is a field waiting for careful exploration, and, unlike most opportunities for scientific research, it promises at the same time to be remunerative as well as

useful. It is not probable that the ranks of veterinary medicine and surgery will for many years to come be even fairly filled—much less crowded—which can hardly be said of any other profession.

[We are glad that Doct. Liautard has presented the pecuniary advantages of veterinary practice in this manner, for we have often advised young men who proposed studying medicine to learn all they could at a medical college, and then give their attention to veterinary medicine. This presentation, however, calls for a word of caution. If a young man enters the veterinary profession merely *because* it promises to be profitable, he will surely fail. It is still less than the medical profession, an occupation for those who are fit for nothing else, and too lazy for manual labor. Unless a young man feels attracted to this profession more strongly than to any other, the chances of success are small. It is to encourage those who feel thus inclined, but are deterred by doubts as to the future, that Doct. Liautard has presented the above article.—EDS.]

## Self Acting Ferry Boat.

A correspondent sends a sketch of a self-propelling ferry boat, to be used in crossing streams in which there is a strong current. The boat is a common flat bottomed scow, but it would be more



FERRY PROPELLED BY CURRENT.

effective with a side-board to be let down the same as the center-board of a sailing boat. The boat is attached to the guide rope, stretched across the stream, by pulleys and tackles as represented in the engraving. When the boat is parallel with the guide rope, it is stationary; when one of the tackles is let out, the boat takes a diagonal position, and the current striking the side of it, pushes it across the stream. By having long ends to the tackle which can be fastened to the posts on the banks of of the stream, the tackle may be drawn up, even when the boat is on the opposite side of the stream, and be brought over for use without much labor.

## Winter Milk Profitable.

The average farmer in the Northern States only plans for milk during the grazing season, from May until October. His cows drop their calves as near the first of April as possible, the calves are killed or weaned by May 1st, the milking season follows, and the cows are dried off in October or early November. For four or five months in the year the cows yield no profit, but make a heavy bill of expense for food and labor. That a good flow of milk can be secured through the winter, is demonstrated by the abundant supplies that our large cities receive from the milk dairy districts. These districts lie mainly within 150 miles of the city, and the milk supply of the preceding day is distributed to customers in the morning. Farmers are turning their attention more and more not only to the supply of this traffic in milk for the large cities, but to the supply of fresh butter for the local markets. If three months or more of milk production can be added to the year, it will make a very important addition to the income of the farm. The interest on the money invested in the herd has to be paid, whether we get milk from them for six months or ten. To secure the best results from a milking herd, three important matters are to be looked after: the stock, shelter, and fodder. These things are grievously neglected by old style farmers. "A cow is a cow," is their proverb, and "the breed is all in the trough" is its twin adage. Experience teaches observing farmers that both proverbs are false. In many herds there is a great difference in the average yield and quality of milk. Not infrequently there is a difference of one-third or one-half between the best and the poorest cow. This difference can be greatly reduced by the introduction of thoroughbred stock. If a farmer wants to make winter butter, the use of a thoroughbred Jersey and Guernsey bull of good butter pedigree, will enable him to raise cows for this purpose. They will be of a more uniform good quality, and will give richer milk for ten months in the year. Then as to shelter; cows will not give milk in winter if fed at the stack-yard in zero nights. They must have warm barns, so tight that the manure will not freeze much, and yet be well ventilated; and the barn should be not only a shelter, but a manufactory of fertilizer as well, which involves a cellar underneath. A variety of fodder is also necessary. Those who cater for the milk market, use in addition to early cut hay, brewer's grains, corn-stalks, corn-meal, shorts, apples, beets, carrots, turnips and cabbages. I have found sugar-beets and mangels to be cheaply raised, and an excellent ration for producing milk. CONNECTICUT.

## A Log Tram-Way.

A roughly constructed but effective railroad has recently come into use in lumbering regions, which is worthy of notice for its applicability to agriculture and other industries where the moving of coarse heavy matters, such as manure, produce, earth, stone, etc., is often necessary. Such a road was constructed and used by the writer several years ago for the purpose of moving a large quantity of earth in making a long and deep cutting through a hill. It was then found that earth could be moved a distance of 800 to 1,000 feet, by means of roughly constructed cars with wooden wheels, drawn by horses, upon a portable wooden road, at a fourth of the expense of carts or wagons. A similar experience has resulted from the use of the same kind of road in the great north-western pineries, where the rapid consumption of timber has driven the lumbermen to localities remote from water transportation. The rails are logs, either in their natural shape, or squared, or rounded, which are mortised or spliced together at the ends, and are held in place by cross-ties into which they are sunk and pinned. Or stakes may be driven into the ground on either side to hold the rails in position, as there is little possibility of their spreading; in this case the cross-ties, if used, are simply laid on the ground, which is leveled as may be necessary to make a satisfactory bed. Six feet apart is a convenient distance for the rails, as then a double team may be driven between them. A 3 or 4 feet gauge is sufficient when but one horse is used. To form curves, saw-cuts are made on both sides of the rails, which are then bent and held in place by stout stakes (fig. 3). The wheels, fig. 2, are cast with a wide face, sometimes 14 inches across, and with deep flanges—4 inches for large wheels—to keep the wheel from mounting the rail. The axle is of iron, from 1 to 3 inches thick, as may be necessary. At figure 4 is shown the manner of joining the rails by means of a dovetailed mortise and a bolt.

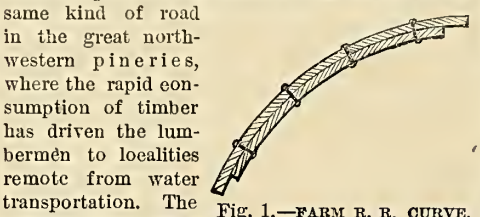


Fig. 1.—FARM R. R. CURVE.

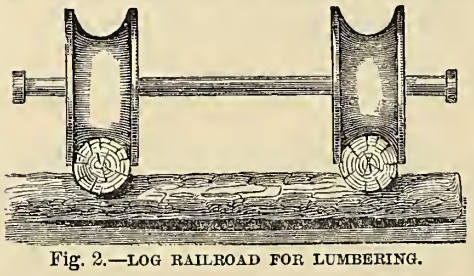


Fig. 2.—LOG RAILROAD FOR LUMBERING.

For light work, such as drawing in crops, moving manure, sanding cranberry marshes, or moving

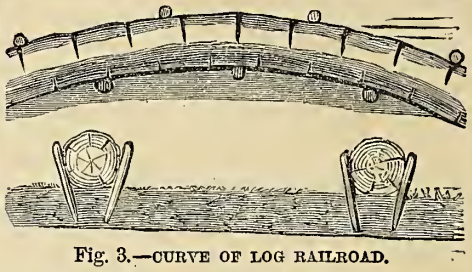


Fig. 3.—CURVE OF LOG RAILROAD.

earth in grading, a tram-way may be made in sections, of light scantling, 2 x 4 or 3 x 5, with the ends halved together. For curves the rails may be made of strips of board, bent to the desired shape and held in place by cross-ties and iron bolts. Wheels, with flanges, may be constructed of hard-wood plank, with axles of 1½-inch round iron. There are many cases where tram-ways of this description would be more economical than wagons drawn by horses or oxen, as when a great deal of manure is to be carted to the fields each year, and especially where lumber is cheap or grows upon the farm. The laying of the track is easily done by putting down a few sections, loading a car with other sections, which in turn are laid as the car is moved along. Several hundred feet may thus be laid in an hour, and the road taken up and put down in another place in the same manner. Roads of this kind have been in use for some time on French farms where beets are grown for sugar making, and heavy crops of fodder are produced for feeding cattle.

Fig. 4.

## Useful Hints for Cold Weather.

### Popular Errors.

A common error, one often injurious to health and not infrequently fatal to human life, and one greatly unprofitable in the care of stock, is illustrated by the practice of some farmers we remember in our boyhood days on a western farm. The error is quite prevalent still. These farmers kept their sheep especially, and sometimes other stock, in open fields, or at best, in exposed yards and sheds, allowing them to feed from the sides of open hay stacks. Hay was cheap, and the sheep ate it voraciously. This large consumption of food was considered a mark of vigor, and of health even. (We do not forget that these farmers were accustomed to apply pine-tar freely to the noses of their sheep in spring, to cure a sort of catarrhal discharge always prevalent, but attributed to something outside of the real cause.)—Many parents, alas! believe, and practice upon the belief, that thin clothing, sleeping cold, and bare legs and arms, harden children and make them vigorous. What are the facts?

Our bodies are warmed precisely the same as our rooms are warmed. In burning wood, coal, corn, wheat, oil, etc., the oxygen of the air unites with the carbon (coal) of these substances, producing carbonic acid which escapes unseen. In thus combining, heat, before insensible, is given out in a sensible condition. (Scientists will excuse this form of illustration.) When we *eat* the corn, wheat, flour, meat, or other food, it is worked up or digested in the stomach, goes into the blood, and there meets with oxygen from the air absorbed into the blood through the delicate membranes of the lungs. Each atom of food that unites with an atom of this oxygen in the blood, produces carbonic acid, and *gives out heat* which warms the blood, and through it the body. (The carbonic acid is breathed out through the lungs, and escapes invisible, just

as it does from the fire.) When no food is taken for some time, the reserved supply of fat and flesh stored in the body is consumed to supply the heat needed to keep the body alive. Let it be fixed in the mind that all the heat of the body must come from food actually burned in the blood, or, in the absence of food, from burning some of the substance of the body itself. We do not *see* the burning, simply because only very small atoms are burned at any one point; but the facts are just as stated.

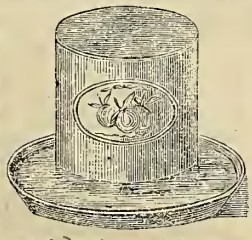
But heat is always escaping from the surface of the body, and the more there is escaping, the more fuel (food) must there be supplied, or more of the fat and flesh of the body will be consumed and wasted, and the body decreases in weight and substance. If just enough food is supplied, there will be no change. If there is supplied and digested more than enough food to meet this heating requirement and the other wastes, flesh and fat will accumulate in the body. Is it not clear that if, by warm clothes, by warm rooms, and warm barns, we stop some of the heat from escaping from the surface of our bodies and those of our animals, less fuel (less food) will be needed for producing heat in the blood? Those sheep referred to above were obliged to eat much hay to keep from freezing to death. A good shelter to ward off the driving winds and showers that so rapidly carried away their heat, would have saved a great deal of food. A warm barn or enclosure would have saved more.

Fig. 2. MOULD FOR BONE-CRUSHER

They crowded close together to catch from each other the escaping heat, which helped some. Bees, by clustering closely in winter, save a good deal of heat.—This explains why animals take on flesh faster from the same food in warmer than in colder weather. They use up less in supplying heat. Cows, in warm quarters, and in warm weather, secrete and furnish us with carbonaceous butter, which they must burn to supply loss of heat in cold weather, when not warmly sheltered.

*Another Important Point.*—If we wish a certain amount of heat from a steam boiler, that furnace will give it with the least amount of fuel which is protected from loss of heat in other directions. If the furnace have a poor covering, or if much of its heat escapes in the chimney, you must pile on the fuel, often to the gradual or even rapid burning out and destruction of the furnace itself. Now all our food that is to be of any use must be worked over into proper form in the stomach. It does not get into the blood until it is dissolved in the gastric juice, and has made a draft upon the liver and other organs for certain fluids to change it into a form which the blood will absorb. The more food the stomach has to work up to supply heat wasted through insufficient outside protection, the greater is the labor needlessly put upon it, always exhausting, and resulting in debilitation, if not disease. There is no questioning of the fact, that multitudes destroy the furnace (the stomach), or injure it, and over tax the other digestive organs, and bring on disease, consumption, etc., simply by the fatal error of supposing that exposure to cold promotes vigor.

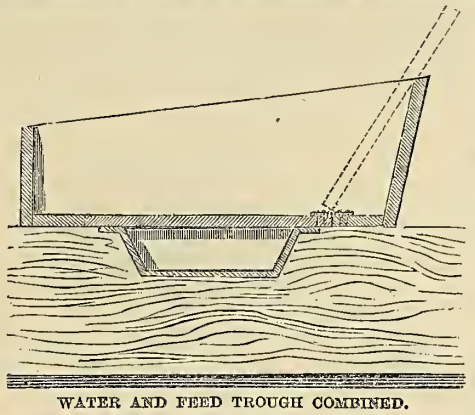
**Simple Water Fountain for Chickens.**—"A. R. P.," Philadelphia, referring to the water fountain for chickens, described on page 336, September number, suggests an improvement. Instead of cutting several high notches, as there illustrated, he would cut or file but one, and that a triangular notch, only



¼ inch high for a saucer or pan in which water would stand ¼ to 1 inch deep, as indicated in the engraving. Fill the can with water, place the saucer on top, and quickly reverse it, and you have a "pneumatic" fountain holding about one quart, which the chickens can not foul. As the water is drunk or evaporates, more runs out of the can, keeping the saucer always full to the hight of the notch.

## A Water and Feed Trough.

A supply of water in the cow-stable is a great convenience; a simple arrangement for furnishing



WATER AND FEED TROUGH COMBINED.

it to the cows in their stalls may be made as follows: Sheets of galvanized iron are bent to form a trough, and fitted into the floor joists under the feed-box, as indicated in the engraving, making a trough 3 inches deep and 16 inches wide. The flanges on each side are nailed to the joists, and the sheets of iron riveted together at the ends, and made water-tight by cement. The trough runs the entire length of the feed floor, and is supplied with water from a pipe, pump, or hose; a pipe at the other end carries away the surplus water and prevents overflow, and another pipe with a faucet is provided for emptying the trough. The feed-box is built over the water trough, a part of its floor being a trap—indicated by dotted lines in the engraving—by which admission to the water is gained. Before opening this trap, the manger is swept clean; and if there were no other advantage than this compulsory cleansing of the mangers after each feeding, it would be sufficient to pay for the cost of constructing such a watering arrangement.

## It does not Pay to Cut Corn Fodder.

Every hour saved, even in winter, is an hour gained, the product of which may be added to the profit side of the balance sheet. When corn-fodder is properly cured, there is no more need of running it through the hay-cutter, than for rowen hay to be so treated, as is shown by the experience of many practical farmers. One experimenter found that his cows ate all but ten per cent of the whole stalks, while they ate *no more* when the stalks were cut fine. These stalks were from the regular corn field, but had been harvested and cured in such excellent condition that the cows were fed on them and corn meal and bran, receiving no hay, without reducing the milk yield. The corn-stalk orts were run through the hay-cutter, and then spread behind the cows for bedding, so that thus no long stalks got into the manure, while nine-tenths of the labor of cutting the stalks was saved. Other farmers report like results from similar experiments. Of course if the corn-stalks have been carelessly allowed to become dry and hard in the field, it pays to cut and steam them, but the cutting alone can not make them any more digestible or nutritious.

This matter of cutting the coarse material which goes into the manure is important. Mr. Mechi, the great English farmer, who is very successful pecuniarily, and wrote that instructive book, "How to Farm Profitably," cuts all the straw and coarse litter used for bedding in his stables, and finds it a profitable practice, as do many others who have followed his example. The resulting manure is easy to handle, being fine and friable, and mixes well in the compost, thus decomposing more readily.

## A Mill for Crushing Bones.

To save the expense of a purchased bone-mill, one may be made as described below, which will crush them into a condition much more valuable for manure than the whole bones, if not quite as good as if finely ground. Make a circular mould of boards, 6 feet wide and 2 feet deep. Hoops of broad band-iron are fitted to the inside of the mould, and secured to it about one inch apart. The mould is then filled with a concrete of Portland cement, sand, and broken stone (the method of making is described in the *American Agriculturist* for December, 1874). Place in the concrete when filling, binding pieces of flat bar-iron shaped as in fig. 2, to prevent the mass from cracking when in use. In the center, place squares of band-iron, as a lining for a shaft by which the crusher is turned. When the concrete is set and hardened, the frame may be taken apart; and, as in setting the concrete will expand somewhat, the iron bands around the mass will be found to have become a tight solid facing to the wheel. The wheel is then set up on edge, and a square shaft of yellow pine, 6 inches thick, is wedged into the central space. This shaft is fitted to an upright post by a loose band of iron and a swivel joint, so that the wheel may be made to revolve around it. Any other suitable connection may be used for this purpose. A hollow trough of broken stone and well rammed concrete is then laid in the

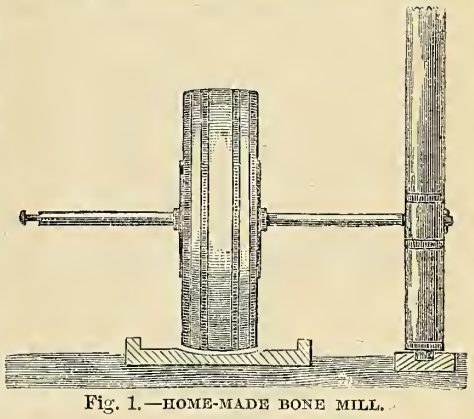


Fig. 1.—HOME-MADE BONE MILL.

track of the wheel as it revolves, and the crusher is complete and ready for a pair of horses to be attached to it, see fig. 1. A crusher of this kind may be put up at a country mill or as a joint affair by a few farmers uniting their efforts, and thus utilizing a valuable fertilizing material, which is now wasted for want of means to render it available.

## Cheese in the Army.

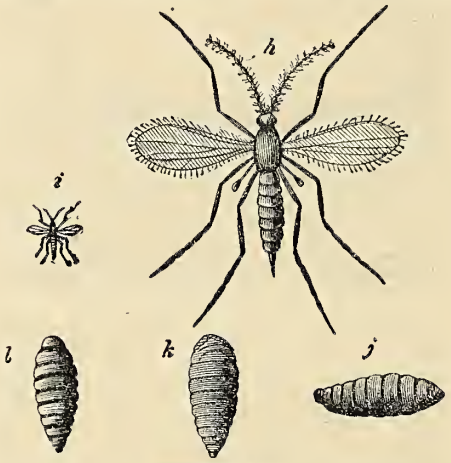
The efforts of ex-Governor Seymour to introduce cheese into the army as a regular ration, are likely to prove successful, as a special commission has given the subject favorable consideration. Samples have been ordered with which to test the question in its various lights, and the prospects are all in favor of the cheese, save the element of cost, which, when viewed in its true light, will not be found a difficult objection to overcome. If the War Department can find a grade of good cheese that will keep a long time under the various changes of climate to which it would be subjected, and can be had at a price which will not raise the cost of the regular ration, it is probable that it will be adopted. The present rations for the soldiers of the U. S. Army on the march, are chiefly canned corned beef and beans, ready cooked. An experiment was recently made on the plains, substituting cheese for the beans every other day; the soldiers liked the cheese, but wanted the beans as well. Beans are very nourishing, but also have bulk, which is necessary to the soldier, who is a very hearty eater. Beans cost only four cents a pound, baked, ready to eat, while cheese costs eight or nine. To overcome this objection it is proposed to include corn-meal in the ration, which is hulky, nutritious, cheap,

and relished by soldiers. Cheese, being a very concentrated food, requires some bulky material, like corn-bread, for example, to be mixed with it in order to render it digestible; it is then nearly or quite all assimilated, if properly made. On the other hand, cheese is an excellent addition and supplement to coarse and bulky food, making up its deficiencies in nutrition, and rendering it acceptable to the palate. The keeping quality is assured, as it is well known that cheese can be made that improves with age for a long time.

This question of foods for the army is a legitimate one for the Department of Agriculture to concern itself with, as it not only might lead to valuable results for the soldiers and the government, but also give people generally more knowledge on a class of most important subjects in regard to which a most lamentable ignorance now prevails, while at the same time helping agriculture by creating a demand for profitable products. Though the butter and cheese products of this country have increased about one-third during the past year, and the exportation in like ratio, the cheese product having been about 350,000,000 pounds, yet there is room for much greater increase. Our resources in this line are almost limitless, and we only need a demand to show our strength. The people of England and Scotland consume about 8 pounds of cheese per head annually, and our people only about 4 pounds, making our home consumption about 200,000,000 pounds, and the export 150,000,000 pounds. American cheese is considered superior to the average English cheese, by English people, though of course some poor grades are sent over with the good, which meet with fully as strong condemnation as the better qualities get praise. It is for our dairymen to make only such grades as will further the trade in foreign markets. Now the introduction of cheese into the army would not of itself materially affect production, but the fact, and the recommendation by the government, would increase the use of this healthful and nutritious food by the people at large, and tend to introduce it into the great armies of Europe, thus largely enhancing the value and production of this product, which is very large, already exceeding in value the hay crop, and is but little less than the corn crop.

## The Hessian Fly.

Inquiries come respecting one of the oldest of our insect pests, the Hessian Fly. Indeed, we may regard it as our "Centennial Insect," for its mischievous work was first noticed in 1776, and it is said, though the matter is controverted, to have been brought to this country in some straw by the Hessian troops. However this may be, the name Hessian is firmly attached to it. This insect was one of the causes of the general abandonment of the wheat crop in the older States, and now that wheat culture is being resumed in many localities where this grain has been but little grown for many years, there is a renewed interest in the enemies of the crop. By the aid of an engraving it will require but a brief description, to enable one to recognize the insect. Some speak of the Hessian Fly, or Midge, as if the two were names for the same thing. While they are closely related insects, the ravages of the midge are confined to the head of wheat, and the other always attack the stems. Our present purpose is with the Hessian Fly. This was first described by Say, 60 years ago, who called it *Cecidomya destructor*. The first or generic name is from the Greek words for *excrescence* and *insect*, as some of them produce small galls, or excrescences; the specific name expresses its destructive character. The engraving shows the perfect insect, of the natural size, at *i*, its spread of wings being about ¼ inch; at *h* is the same magnified six times. The head feelers and thorax, or upper half of the insect, are black, the hinder part of the body is tawny, the wings are blackish, or dusky, and the legs are pale red or brownish, with black feet. There are two broods of the insect each year; the eggs are laid upon the leaves of the young wheat in autumn, usually in September. The insects soon hatch, make their way down between the sheath and the stalk, to a joint, where they remain, sucking away at the juices of the plant, while their bodies become imbedded in the soft and growing stem. As the stem of the wheat is very short at that time, the joints where the larva of the fly are at work are below the surface of the ground; when several of the maggots feed at one joint, they deprive the stem of so much nutriment that it soon weakens and dies. After feeding for five or six weeks, heads downwards, they are full grown, and appear as in *j* and *k*; they then pass into a dormant condition, and appear as in *l*, which is four times the real size. In this condition the maggots, from their size and color, are said to be in the "flax-seed state." From this it passes into the state of a chrysalis, or pupa, and in April or early May the perfect insect comes forth, ready to provide for a new brood. This spring brood find the fall-sown, as well as the spring



HESSIAN FLY.

wheat well advanced, and they do not lay their eggs upon the lower-most leaves; hence the maggots from these are found at the second and third joints. The maggots of this brood are in the flax-seed state about harvest time, and may be carried from place to place in the straw. This brood come out as perfect insects in time to lay their eggs upon the fall-sown crop. This is a brief history of the career of this great enemy to the wheat-grower. One or two of the maggots at the joint of a stem do not kill, but only weaken it, but where there are several, the upper portion of the stem dies. When an insect of any kind becomes very abundant, its natural enemies, especially parasites, increase also, and these are of essential aid in checking the increase of the Hessian Fly. Among the remedies in reach of the farmer are, a rotation of crops, late sowing, the selection of varieties with a hard, stiff stalk, and especially those which tiller abundantly, so that the damage by the late brood may be speedily repaired.

## Inducements to Better Farming.

### Agricultural Society Premiums.—A Change from the Routine Programme.

In the December number of the *American Agriculturist* mention was made of some special premiums offered by "A friend of Agriculture" for competition at the Orange County Fair. These premiums were so successful that the same gentleman renews them, with several important additions, chief among which is that of $30 for "the best managed farm." A little study of the text of these offers, will show a material departure from the usual method. That the new departure is an important and successful one, is indicated by the success of the first trial, though further experience is necessary to decide the merits of the plan for general adoption. These announcements are made now, in order that all may have a chance to begin working for them at once. The object of these premiums is not to make a fine show, but to improve the agriculture of the County, to the pecuniary benefit of every farmer who works for them. The care, and improved methods and means necessary to successful competition, are the same that lead to success and profit in the business itself. The money prizes to be won at the fair are small in comparison with the advantages to be gained by reason of the improved methods adopted in working for them, and the consequent improvement in the future farm practice. The offers give special attention to those features of the agriculture of the County that are, or might well be, most prominent, or are in greatest need of improvement, and are so worded as to induce the best methods in the particular branches to which they refer. The premiums are to be awarded at the next Annual Fair, unless otherwise provided, and are open to competition only by the farmers of Orange County.

*First, Second, and Third.*—For the improvement of milch cows, that the "Orange County milk" product may be enhanced in value. For the best herd of five (5) or more cows of the Dutch or "Holstein" breed exhibited by the owner, $7.00. For the second best ditto, $3.00....For the best herd of five (5) or more cows of the Ayrshire breed exhibited by the owner, $7.00. For the second best ditto, $3.00....For the best herd of five (5) or more native or grade cows exhibited by the owner, $7.00. For the second best ditto, $3.00.—Records of the milk yields of each of these animals for one year, or commencing at the dropping of the last calf, must be posted on each pen. Affidavits to be furnished if desired. Pedigrees of the Dutch cows and of the Ayrshires should also be furnished.

*Fourth.*—To aid in the improvement of the butter-dairy industry of the County. For the best herd of five (5) or more cows of any breed for the production of butter, $10.00.—The pedigrees of any pure blood animals are to accompany them; also the milk and butter record of each competing animal.

*Fifth.*—For the promotion of an industry which should occupy more of the attention of Orange County farmers, and which would add largely to the productive resources of the County. For the best flock of ten or more ewe sheep, accompanied by one male, $7.00. For the second best ditto, $3.00.—Particular attention to be paid to mutton qualities as well as wool bearing.

*Sixth.*—For the greatest profit realized on the production of pork, $5.00.—Each competitor for this premium shall exhibit two or more hogs of his stock, and shall present a sworn statement as to his methods of feeding and care, breed kept, and account of the cost of food and labor expended, and of the pork and pigs sold.

*Seventh.*—To encourage better methods of cultivation, and consequent larger yields of our leading bread grain. For the best acre of either spring or winter wheat harvested in 1879, $6.00. To the second best ditto, $3.00.—Competitors for this premium must exhibit one bushel of the average product of the field, and furnish a sworn statement of the yield, cost, and method of cultivation.

*Eighth.*—To encourage youth in the pursuit of profit and happiness in farm life. For the best collection of farm products grown and exhibited by any person under 20 years of age, $8.00. For the second best ditto, $4.00.

*Ninth.*—To stimulate the production and use of better varieties of fruits, and of garden and field products. For best collection of fruits, vegetables and grains, grown and exhibited by one man, $10.00.

*Tenth.*—To create a spirit of friendly emulation, which shall result in better farm management. For the best managed farm in Orange County, $50.00.—Entries for this premium must be made on or before the first of April, 1879, with the Secretary of the Orange County Agricultural Society. An Examining Committee of seven members shall be appointed by the Society, and consist of parties not entering for the premiums or residing in the same town where any of the competing farms are located. At least three of this committee shall visit each of the competing farms between the 15th of June and the 15th of July, and again in September. A written and sworn statement shall be furnished the Secretary of the Society on or before November 5th, 1879, as to the number, kind, and breed of all animals kept, of all implements, and manures and feed purchased, yield and cost of all farm products, and an account of all produce sold or on hand at the time of making the report. A report of the general plan of management and methods adopted is desired. In awarding this premium, the committee

shall take into consideration the amount of capital employed, the number of acres in the farm, and the profits gained; the object being to *honor the farm which is best managed as a farm.* To be awarded Novemher 15th, 1879.

*Eleventh.*—To create a greater interest among farmers in the *adornment* of their homesteads. For the farm which shall show the neatest roadsides, the greatest neatness ahout the farm buildings, and the most tastefully arranged grounds and buildings, $20.00.—In awarding this premium, the committee shall take into consideration the fact that those improvements which arc produced at the smallest cost, and without interference with farm work, are the most desirable. The use of native trees, shrubs and climbers, especially those indigenous to the locality, in adorning the farm grounds, will be considered hy the committee, and other things being equal, preference will be given to the place where natives are employed rather than exotics.

*Twelvth.*—For the best essay on the past, present, and future of "Orange County Farming," $20.00. For the second best ditto, $10.00.—These essays should have special reference to the *needs* and *development* of the farm interests of the County. Essays to be sent to the Secretary of the Society on or before the 15th day of September, 1879, without a signature, but accompanied by a sealed envelope containiug the name of the writer and title of the article. The prizes to be awarded by a committee of three appointed by the Society, and the awards to be announced at the annual fair. The committee to have the right of rejecting any or all of the essays offered, and the liberty of publishing any or all of them in the county papers, or otherwise.

We publish these special premium offers in full, as they contain some suggestive ideas that perhaps may be useful in other sections, both to the officers of agricultural societies themselves, and to other generous men of wealth who, like the donor of these premiums, may desire to benefit agriculture.

## A Simple System of Farm Accounts.

SECOND PAPER.

A small ledger is necessary, ruled with double money-columns, paged and indexed. A convenient plan is to give 10 to 20 pages to each account, so that it can be carried on for a year or two without being transferred to a distant page. A few accounts only will be needed in ordinary cases. These will he as follows: A general farm or stock account; an account for each field, "Field No. 1," "Field No. 2," and so on; a dairy account; one each for sheep, pigs, poultry, grain, hay, and fodder (the last three may be kept together), general expenses, labor, and house expenses. If others are needed for special cases, they can easily be added; but a complicity of accounts will confuse those not used to book-keeping. To begin, an inventory of stock should be taken, and no other time is better for this purpose than the end or the beginning of a year. The inventory should include everything—land, tools, and stock of all kinds, and these should be valued at what they are worth or have cost. For example, the first inventory may run in this way:

| | |
|---|---|
| 65 acres of land cost | $6,500 |
| 3 horses | 375 |
| 14 cows | 800 |
| 7 yearlings and calves | 120 |
| 2 Berkshire pigs | 45 |
| 124 head of poultry | 62 |
| 1 mowing-machine | 90 |

and so on, enumerating every article, great and small, on the farm, including the amount spent for crops in the ground. The total amount is then entered to the General Farm Account in the debtor (Dr.) or left hand column of the ledger, as follows:

GENERAL FARM ACCOUNT.

| 1878 | | | Dr. | | Cr. |
|---|---|---|---|---|---|
| Jan | 1 | To value of land and stock | $9,275 | 88 | |

Each item is also entered in its own special account on the Dr. side, each being charged with the cost of what appertains to it. Then the general account will he the total of all the balances of each yearly settlement, and will show the exact condition ot affairs at such settlement. For those who understand "double entry," it is easy to practice without using a journal—each entry—that is charged to any one account, always having its corresponding credit in the other appropriate account. For example, when 20 bushels of corn, oats, or feed are ground, or a stack of hay is used for the cows, the Dairy account would be charged with the value of the grain and hay, and the feed account would he credited with the same. Previously the Feed account would have been charged with the value of the grain, hay, etc., when harvested, and the fields from which these had been gathered would have been credited with it at the cost price. Thus each account would represent the business of the year in that particular. If this is done carefully, and without error, at the end of the year the sum of the balances of the accounts should be exactly the same as the sum of the general farm account at the beginniug of the year. A specimen account is given:

DAIRY ACCOUNT.

| 1878. | | | Dr. | | Cr. | |
|---|---|---|---|---|---|---|
| Jan. | 1 | Value of 14 cows | $800 | | | |
| | 31 | 4 tons of hay used | 48 | | | |
| | | 40 bushels of grain ground | 16 | 80 | | |
| Feb. | 7 | 2 tons of bran, and freight | 24 | 75 | | |
| | | One pit mangels, 400 bushels | 20 | 00 | | |
| | 28 | Two months' milk sold | | | $244 | 80 |
| | | 48 lbs. butter | | | 12 | 00 |
| | | 2 months' wages, dairyman | 60 | 00 | | |

Here are the items in corresponding accounts:

GRAIN AND HAY ACCOUNT.

| 1878. | | | Dr. | | Cr. | |
|---|---|---|---|---|---|---|
| Jan. | 1 | Stock on hand | $640 | | | |
| | 31 | Hay used for dairy | | | $48 | 00 |
| | | Grain for dairy | | | 16 | 80 |

CASH ACCOUNT.

| 1878. | | | Dr. | | Cr. | |
|---|---|---|---|---|---|---|
| | | Balance cash on hand | $122 | 40 | | |
| Feb. | 7 | Cash paid for bran | | | $24 | 75 |
| | 28 | J. M., 2 mos. wages | | | 60 | 00 |
| | | Cash for milk | 244 | 80 | | |
| | | do. butter | 12 | 00 | | |

FIELD NO. 1.

| 1878. | | | Dr. | | Cr. | |
|---|---|---|---|---|---|---|
| Jan. | 1 | To 2,848 bus. roots on hand | $142 | 40 | | |
| Feb. | 7 | By 400 bus. for cows | | | 20 | 00 |

The balance of each account, the cash account, as well, at any time, should show the amount or the value of the stock on hand; so that it can he seen each month how matters stand with every department. The full account for "Field No. 1" is given below as a specimen:

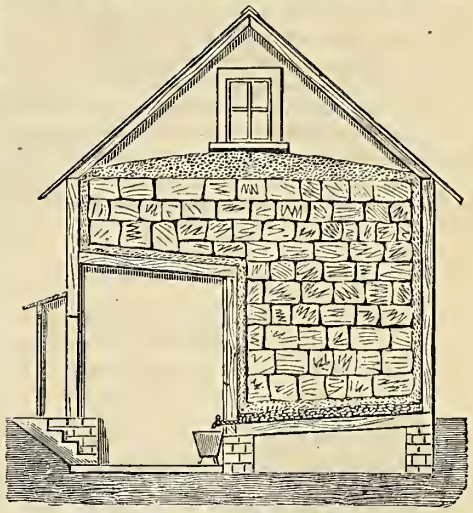
FIELD NO. 1.

| 1877. | | | Dr. | | Cr. | |
|---|---|---|---|---|---|---|
| May | 4 | Plowing 3 acres | $6 | 00 | | |
| | 10 | 1,800 lbs. mangel manure | 100 | 80 | | |
| | | 12 lbs. seed | 9 | 00 | | |
| | 12 | Harrowing and sowing | 3 | 50 | | |
| June | 10 | 6 days' weeding | 6 | 00 | | |
| | 12 | 1 day cultivating | 2 | 00 | | |
| July | 1 | 8 days' weeding | 8 | 00 | | |
| | 7 | 1½ day cultivating | 3 | 00 | | |
| | 22 | 1 day cultivating | 2 | 00 | | |
| Oct. | 30 | 4 days' pulling roots | 4 | 00 | | |
| Nov. | 10 | 8 days' pulling and pitting | 9 | 75 | | |
| | | Sundry expenses | 9 | 95 | | |
| | | Dairy account, 432 bushels | | | $21 | 60 |
| Dec. | 31 | 2,848 bushels in pits | | | 142 | 40 |
| | | | $164 | 00 | $164 | 00 |

The item $142.40 is carried on as the balance to hegin the account for the new year, and also figures as so much stock on hand in the general farm account. It is seen by this account that the roots cost nearly 5 cents per hushel; the $9.95 includes little unimportant items not easily entered in detail. Just as in business, the small sums which go, a few cents at a time, are lumped in a "petty cash account." Or this amount may be entered as profit, and carried to a "profit and loss" account.

## A Capacious Refrigerator.

A large cool room is often greatly needed on the farm, when neither a cellar or a double-walled dairy house will serve the purpose. An Illinois subscriber sends a sketch of an ice-house, with a room in one side, that will answer this purpose. Similarly arranged ice-houses are not uncommon in some sections, and have been figured in the *American Agriculturist.* The engraving represents a section of the building, with a room partitioned off in such a manner that it has ice on three sides and the top, and its floor is below the surface a few feet, in order to take advantage of the coolness of the earth. The double wall of the ice-house extends in front of the open room, and the door is protected by a porch. A shallow cellar under the floor of the ice-house admits ventilation by the passage of cool air under the ice, and thence off through a flue. The

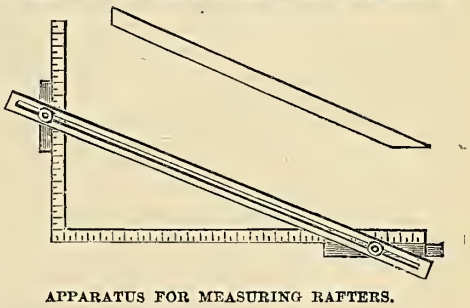


ICE-HOUSE AND REFRIGERATOR.

floor and the ceiling of the room slope, to secure drainage, as shown. An ice-house constructed in this manner provides a room that may be used for setting milk, or for cooling and keeping milk for sending to market; for storing butter, meats, etc.

## Measuring and Marking Rafters.

The difficulties of fitting rafters may he overcome hy the following simple means: Take a strip of wood 2 inches wide, 24 to 30 inches long, and 1 inch thick; saw a slit in the center a quarter of an inch wide, as shown in the engraving; mark the inches and other divisions of the scale upon each edge. Make two strips of brass or steel 1 inch wide and $^1/_{16}$ thick, and 6 inches or more in length. Connect these to the long strip hy means of thumb screws. To use the gauge, lay it upon a square, as shown, with the zero (0) of the scale on the figure of the long arm of the square which shows half the width of the building in feet; and place the edge of the gauge upon the figure of the short arm of the square, which marks the pitch of the roof. Thus, for a building 28 feet wide, and with a roof pitch of 10 feet, the 0 should come on the long arm and the edge of the gauge meet 10 on the short arm. The figures on the gauge will mark the length, 17



APPARATUS FOR MEASURING RAFTERS.

ft. 3 in., of the top side of the rafter. Then hy tightening the thumb screws, and fixing the metal guides even with the arms of the square, the hevel of the ends of the rafter will he given. A rafter cut according to the gauge is represented at the top of the illustration. The projection of the rafter beyond the cave of the roof is to be added to the above length. This simple apparatus will enable any one handy with tools to cut rafters of the proper length and shape, and it will also facilitate the operations of an experienced workman.

**Canning Fruit in England.**—A correspondent of the "Journal of Horticulture," (London) says: "For Gooseberries, Currants, Damsons, etc., to each 3 lbs. of fruit, add 1 lh. of loaf sugar, and one teacup of water to each pound of fruit. Put all in a preserving pan and let the ingredients come to the boiling point. Have ready jars in which sul-

phur has been burned for 15 minutes. When the fruit is cold, pour on the top some hot mutton fat, then tie down with bladders."—Notice the definitiveness of this.—You must have jars ready in which "sulphur is burned for 15 minutes."—How big the jars, or how much sulphur, seems to be of no more consequenee than what is to be done with the jars after 15 minutes of burning sulphur. "When the fruit is cold"—in the "preserving pan," or where?—it is to be greased with "hot mutton fat." Burnt brimstone and mutton tallow, what a combination! It is no wonder that the English housekeeper can't can, while every American housekeeper can can, and so easy too, without burnt brimstone or hot fat!

## Farming for Profit.

The most profitable farming is that which gives the largest returns for the smallest comparative outlay. This statement is based on business principles, but it is not always apparently true, for sometimes a farmer gets large crops with small outlay by the use of means which draw heavily upon the reserve forces of the soil. The latter should be reckoned into the expense account, but usually is not, though if such a course is continued, it results in exhaustion. To revise the first statement then: that kind of farming is most profitable which gives the largest returns for the expense incurred, without decreasing one's capital by exhausting the soil.

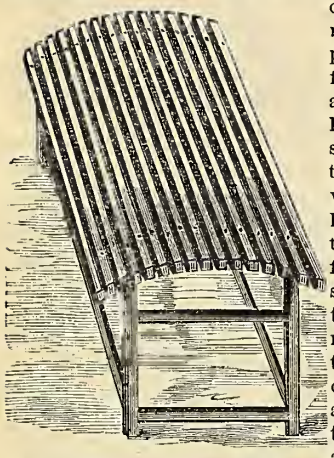


Fig. 1. TABLE FOR DRESSING PORK.

English agriculture dates its rise from the beginning of the fattening of animals for market. The most fertile farms in the Eastern States to-day, are, as a rule, those that are devoted to stock and dairy-farming. The production and sale of large crops of grain, potatoes, and other field crops, without any return of fertility, has caused the present sterility of the many thousand acres of comparatively exhausted farm lands, West, South, and East. If their owners had kept live stock for the consumption of the crops, and sold only the animal products and the surplus grain, etc., they might have been even more productive to-day, than in the beginning. The growth of plants does not exhaust the soil, but on the contrary makes it richer, so long as the mineral and nitrogenous elements of plant-food are returned to the land. The action of the roots is to extract food material from the rocks (as we may regard the inorganic matter of the soil), and of the leaves to draw it from the air, and to store it in the soil; but if more than the material thus obtained is removed and not returned, exhaustion necessarily follows.

By feeding crops to animals, the larger portion of the essential mineral and nitrogenous portions are returned to the soil in the resulting manure; particularly is this the case in fattening mature animals, and in the production of butter and pork. An animal extracts from its food, nitrogen for its muscles, phosphate for its bones, some potash, and the vegetable oils and other carbonaceous matter for its fatty tissues and for respiration. The nitrogen, phosphates and potash, we must supply to the soil, as plants seldom obtain these materials from natural sources so rapidly as we remove them in crops sold; the material for oils, sugar, starch, and other carbonaceous matters are furnished to the plants from air and soil in ample quantities to meet all demands. Now, a growing animal stores up the first three of these food materials. A mature animal, on the contrary, only uses enough of them to make good the wastes of the body, but these wastes are all found in the excrements; so that practically a fattening animal removes *none* of those constituents of its food that are valuable for manure. We can, therefore, feed the home-grown crops and purchased food to mature animals, and get nearly or quite its full value twice over, in beef and in manure for the production of more crops.

Similar principles apply in feeding swine. Pork is for the most part composed of the fatty matter which costs nothing in the crop. Hence the value of hog-manure, with which every farmer is familiar. In butter-making also, very little if any fertility is removed from the farm in the butter sold, as it is composed wholly of fatty compounds. This fact is illustrated in practice by the exceptional fertility of butter dairy farms, which, instead of becoming sterile are continually growing more fertile. These facts indicate that the profitable farming of the future in many sections, is to be, as it is to-day, in increased attention to fattening animals and dairying.

## Hog-Killing Implements—Ringing.

While on the farm of J. W. Morrison, in Orange County, N. Y., not long ago, we saw some convenient and ingenious appliances, that would be useful elsewhere. Mr. M. makes butter from about 20 cows, churning the whole milk, and feeding the butter-milk to his swine. In his piggery is a room for slaughtering. The stout table on which the dead porkers are lain to be scraped and dressed after being scalded, is made with its top curving about four inches in a width of four feet, and consisting of strips of oak plank, as represented in figure 1. This curved top conforms to the form of the carcass, and holds it in any desired position better than a flat surface. For scrapers, old-fashioned iron candle-sticks are used; the curved and sufficiently sharp edges at either end serving as well as a scraper made for the purpose, and its small end has an advantage over the latter for working about the eyes and other sharp depressions, (see fig. 2). A cleaver for use in cutting up the pork is shown in fig. 3; it has a 13-inch blade, 3 inches wide at the widest part, and ¼ inch thick at the back. This is a convenient implement, easily and cheaply made by a good blacksmith, if it can not be had at the stores; any mechanic can put on the wooden handle.

Fig. 2.

In figure 4, is represented Mr. M.'s home-made hog-ringing apparatus. His blacksmith makes an instrument resembling a horse-shoe nail, of good iron, about 3 inches long, $^3/_{16}$th of an inch wide, and $^1/_{32}$d of an inch thick, tapering to a point; the "head" is merely the broad flat end curled up. Just before using, this needle-like instrument has its corners rubbed off on a file; it then is easily pushed through the septum of the pig's nose.

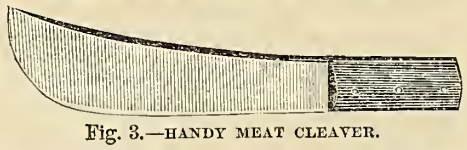


Fig. 3.—HANDY MEAT CLEAVER.

A key with its tongue broken off and a slot filed in the end, is used to curl up the projecting end, and the ringing is done. The "rings" cost about 75 cts. a hundred, are effective and easily applied.

## Exportation of Live Animals.

The following is the text of that portion of a bill recently passed in the British Parliament relating to the importation of animals, which concerns the interests of American cattle breeders and exporters:

1. Foreign animals are to be landed only at a part of a port defined for that purpose by a special order of council, called a foreign animals wharf.

2. They are to be landed in such manner, at such times, and subject to such supervision and control, as the Commissioners of Customs from time to time direct.

3. *They are not to be moved alive out of the wharf.*

"This law is to go into effect on the first day of January, and is to include all foreign cattle, except (1) those from the Isle of Man and the Channel Islands; (2) those intended for exhibition or for other exceptional purposes; and (3) those, the landing of which is for the time being prohibited by order of council.

"In relation to the foreign animals, if, and as long as, from time to time, the Privy Council are satisfied, with respect to any foreign country, that the laws thereof relating to the importation and exportation of animals, and to the prevention of the introduction and spreading of disease, and the general sanitary condition of animals therein, are such as to afford reasonable security against the importation therefrom of diseased animals, then, from time to time, the Privy Council, by general or special orders, shall allow animals, or any specified kind of animals, brought from that country, to be landed, without being subject under the provisions of this schedule, to slaughter or to quarantine, and may for that purpose alter or add to these provisions, as the case may require; but every such order shall forthwith, after the making thereof, if Parliament is then sitting, and if not then, forthwith after the next meeting of Parliament, be laid before both houses of Parliament."

The bill is apparently a necessity, to protect English herds from imported diseases, which have caused immense losses. We understand that the British Government has called on our Government for a statement as to the provisions against the spread of and protection from disease in this country. If the truth be told, a lamentable condition of veterinary science will be shown up, that we hope will rouse the Government and people to remedy the evil. One evident result of this law will be to increase the foreign exportation of dead meat.

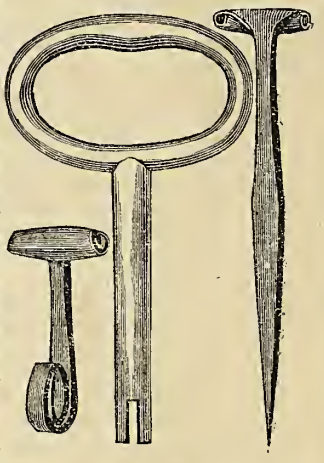


Fig. 4.—HOG-RINGER AND KEY.

## Keeping Poultry in Cities.

"D.," Springfield, Mass., sends to the *American Agriculturist* his poultry account for two years, to show that fowls can be profitably kept in a city:

Nov. 1, 1876.—*Dr.*

| | |
|---|---|
| Material for house | $7.00 |
| Paid cash for 10 fowls | 5.00 |
| Paid cash for Leghorn eggs for setting | 75 |
| Paid cash for feed for one year | 15.22 |
| | $27.97 |

*Cr.*

| | |
|---|---|
| 74½ doz. eggs, @ 25c | $18.62 |
| 36½ lbs. meat, @ 18c | 6.52 |
| 14 Brown Leghorns, @ 60c | 8.40 |
| 13 Brown Leghorns, @ 50c | 6.50 |
| House | 6.00 |
| | $46.04 |

Nov. 1, 1877.—*Dr.*

| | |
|---|---|
| House | $6.00 |
| 14 Brown Leghorns, @ 60c | 8.40 |
| 13 fowls, @ 50c | 6.50 |
| Feed, one year | 16.17 |
| | $37.07 |

*Cr.*

| | |
|---|---|
| 164¼ doz. eggs, @ 23c | $37.79 |
| 74½ lbs. meat, @ 16c | 11.92 |
| 17 Brown Leghorns, @ 60c | 10.20 |
| 6 Plymouth Rocks, @ 60c | 3.60 |
| 5 chickens, @ 30c | 1.50 |
| House | 5.00 |
| | $70.01 |

My hen house is charged for cost of material only, doing the work myself. Its dimensions are 4 feet by 6; 5 feet high on sides, 7 feet in center; the run is 30 feet by 4 feet, of which 15 feet is covered in the winter. House and run face the south. The fowls are confined when they would interfere with the garden, except letting them out on a vacant lot near sun-down. I have 22 fowls in the house now, the balance in a dry goods case used for raising chickens. I kept an average of 17 through last winter. These accommodations seem small for the number of fowls, but they thrive and are healthy; have lost three in the two years, from accident. I screen coal ashes over their droppings nearly every morning, and clean out often. I think this is the secret of their healthiness. The fowls kept last year were Brown Leghorns, and three Buff Cochins for mothers. For feed, I give them in the morning corn-meal and wheat middlings, equal bulk, in winter mixed with warm water; afternoon, wheat, buckwheat, table-scraps, oats, etc., changed often.

## A New Pear—Kieffer's Hybrid.

"I have something new to show you," said Mr. C. H. Miller, the most efficient Chief of the Horticultural Department of the Centennial Exhibition, on one of the bright September mornings of that wonderful autumn of our Centennial year. The remark was accompanied by the presentation of several pears from a basket at hand. It *was* "something new;" though tolerably familiar with pears, this was quite unlike any other that we had ever seen. There was something about its appearance, and its texture, as indicated by the feeling of the fruit when handled, that indicated a difference between that and other pears—nor did this individuality disappear upon testing; the character of the flesh and its flavor were quite peculiar, and not to be compared with any other pear that could be called to mind. We learned from Mr. Miller that the fruit was from an accidental seedling at Germantown, Pa., upon an old place where there were trees of the Chinese Sand Pear (*Pyrus Sinensis*), more frequently cultivated 20 or 30 years ago as an ornamental tree, than it is at present. As trees of the Bartlett grew near by, it was supposed—and the character of the fruit favors the supposition—that hybridization had taken place, with this fruit as the result. A few days ago, there came from Mr. William Parry, the well-known fruit-grower of Cinnaminson, N. J., a circular describing his novelties for 1879, and there in engraving and colored plate, was our centennial pear. It appears that Mr. Parry secured the original tree, and has called the new variety "Kieffer's Hybrid." In his circular he gives an account of the origin of the fruit essentially as stated above, and presents it as a variety to be commended, especially for its hardiness and productiveness. The engraving shows the average size and shape, the fruit being very uniform in both these respects; its skin, which is of a bright, peculiarly rich yellow, has a texture that, in handling, conveys the impression of hardiness. In his published description, Mr. Parry says: "flesh white, buttery, and juicy; quality good." In a private letter he says that he ranks the pear as "simply good, about equal to the Duchesse d'Angouleme." In this we think he does what is unusual with introducers of new fruits, i. e., under estimates its quality. Our recollection is, that it has a refreshing briskness that the Duchesse has not. The fruit, while it may not come up to the high standard of "best," is of sufficiently good quality to be acceptable to those who esteem the Bartlett, which, while regarded as second or third rate by critical amateurs, meets the general taste, and every candidate for popular favor must stand a comparison with that best known of all our pears. We have not in a long time seen a fruit that appeared to unite so many elements of popularity as "Kieffer's Hybrid," and shall be much disappointed if it does not prove to be a valuable and profitable market fruit. The tree is a strong and vigorous grower, bears early, is very productive, and apparently as free from disease as the Sand Pear, which is one of its parents. The fruit is of good size, of an attractive color, and keeps well, never decaying at the core. The original tree has been fruiting for about five years, and for the last two years has yielded four to five bushels each year. The Centennial Fruit Committee gave it a Prize Medal and Certificate as introducing "a new race of great excellence," and at the 50th Annual Exhibition of the Penna. Horticulural Society held last Sept., it received "honorable mention." Mr. Parry shows his faith in its future as a market fruit by setting out an orchard of 350 trees of this variety. Of course, like all new varieties, this has to endure the test of cultivation in a variety of soils and locations, and we are glad to know that Mr. Parry has already placed it on trial with various pomologists of experience in localities widely separate. We shall be disappointed if the result does not show that its popular qualities have not been over-estimated.

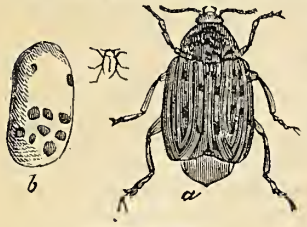
A NEW PEAR—KIEFFER'S HYBRID.

## The Bean Weevil.

The Pea Weevil is now so common that the localities where sound seed peas can be raised are yearly growing fewer. The Bean Weevil, scarcely known 20 years ago, except in the cabinets of entomologists, has increased with great rapidity, and it will soon be difficult to find a locality where seed beans can be raised free from this insect, and what is of more importance, it threatens to make the bean crop a very uncertain one. The "American Entomologist" Feb., 1870, speaks of the insect as new, "within the last five years." The first specimens were received by us in the autumn of 1862, these two data enable us to fix very nearly the time at which the insect began to be noticed. At first it was supposed to be the same as the Pea Weevil, and it was asserted that it was an European insect imported and distributed by the Department of Agriculture. But entomologists discovered that it was not the same *Bruchus* that infests the pea, that it was not an imported insect at all, but a native species described many years ago by Say, (*Bruchus obsoletus*), who found it in the seeds of a species of *Astragalus*, or Milk-vetch, of the Western States. Here we have another example of the rapid increase of a native insect under favoring conditions, the too well known Colorado Potato Beetle, being another. So long as it was confined to the seeds of the *Astragalus*, which is not very abundant any where, the insect was little known, even to entomologists, but when bean fields came to its native localities, it had at once food enough to favor rapid propagation, while it met with conditions for disseminating it far and wide. The Astragulus seeds spread only in the natural way; birds and other animals might carry them for short distances, but so long as the insect fed only upon that, it occupied a restricted area. On the other hand, when once established upon the bean, it not only had abundant food, but, so to speak, it had at command every means of transportation, beans being an article of commerce; wherever these were sent, whether for food or for seed, the insect was carried, and it appears in widely separated parts of the country in a few years.

The engraving, (see next page), from Riley's "Insects of Missouri," shows the insect of the natural size, and magnified, and also an infested bean. As the characters which distinguish this from the Pea Weevil are of interest to entomologists only, we need not give them. So far as known, the two insects confine themselves to their respective seeds. In the pea we find but one insect to a seed, while in the bean there are usually several, as many as 12 having been noticed. It is supposed that, like the Pea Weevil, the mother insect deposits her eggs upon or in the pod while it is very young and tender; the young larvæ find their way into the seeds, where they make their growth, feeding upon the contents of the bean, and before they pass into the pupa state, cut quite to the seed-coat or skin of the bean, thus forming those semi-transparent, perfectly circular dots, noticeable in the infested seed. When the beetle is ready to come out, it has only to break away this thin covering of skin. Some of the perfect insects appear in the fall, or during the winter, and of course perish, but enough remain until spring to carry on the work. The practical question—and it has become an important one—is, how to get rid of the insects. If all would agree to plant no imperfect seed, that would help, but would not be enough. Every bean containing a weevil should be destroyed, otherwise the insects will escape and find their way to the field or garden and continue the evil. Much damage has been done to the pea crop, and the insect infesting that is much more widely disseminated than it would have been, by the assertion that the presence of the weevil did not injure the value of the peas for seed, as it never destroyed the "chit," as the plumule or growing point is popularly called. This statement, repeated in journals and books, put people off their guard, and buggy peas have been sown until there are few localities where lovers of green peas do not eat their share of "worms." But the fact is, as the experiments of Mr. Peter Henderson plainly show, that while the Pea Weevil does not *destroy* its germinating power, it does injure the seed. The larva of the weevil eats up a large share of the food intended for the young pea; though the seeds do germinate, the young plants—robbed of half or more of the food provided for them—are puny and starved, and thus deprived of nourishment when they were young and most need it, are in all their after life less vigorous and less productive than similar plants from sound seed. In the bean a still greater share of the food

for the young plant is destroyed, and the fact that in spite of the insects some of the seed may come up, should not induce any one to use weevil infested seed. A great evil is impending, and every one, whether he grows beans as a field crop, or as a garden crop, should begin to arrest it before the matter gets beyond control. Whatever the present trouble and cost, sow only perfectly sound seeds, and burn, or feed out at once—long before spring—any that show the presence of insects, and, what is of quite as much importance, talk over the matter with your neighbors and induce them to do the same. In such matters as these the necessity for combined effort becomes manifest, and in producing united action. Farmers' Clubs, Village Associations, or by whatever name such assemblages of farmers and rural people may be called, find their best work.



BEAN WEEVIL.

## The Calycanthus, or Sweet-Scented Shrub, As a Cattle Poison.

The Sweet-Scented shrub, often abbreviated to "Shrub," also called "Carolina Allspice," is one of the oldest and best known plants in cultivation. Its dark maroon-colored flowers have an exquisite fruity fragrance that makes the shrub universally popular. There are two or three species and several varieties of *Calycanthus*, found wild from Virginia southward, and one is peculiar to the Pacific Coast. The best known species and the one most cultivated is *Calycanthus floridus*, the seeds of which, a very intelligent correspondent in the mountains of Southern Tennessee informs us, are poisonous to both cattle and sheep with often fatal results. This is to us a perfectly new feature of the *Calycanthus*, and also entirely new to us as a poison to our domestic animals. Our correspondent is quite familiar with the plant, is engaged in an occupation that leads to exactness, and we can not question the accuracy of his statement. The most that has been claimed for the shrub is, that its bark is a useful tonic. Doct Porcher, in his excellent work, "The Resources of the Southern Fields and Forests," makes no mention of the poisonous quality of the seeds, but in his remark "The seeds seldom mature," puts us on a new track, and in following up the matter of seeds, we find in Torrey and Gray's Flora of North America, Vol. 1, at the end of the description of the varieties of *C. floridus*: "They are said seldom to ripen their fruit in their native situations." Besides these, Nuttall in his Genera, 1818, speaks in illustration of a botanical point, of "the rarity of fruit in the *Calycanthus*, even in its native mountains." This testimony as to the rarity of the seed is interesting, as it explains why we have heard so little of its poisonous character; but our correspondent, living where, from some cause, the seed is abundant, has had an opportunity to observe its deleterious effects. This matter of cattle poisons among our native plants is not only interesting, but one of great practical importance. It would appear, from our present knowledge, that while the seeds of *Calycanthus floridus* are positively deleterious to animals, they are produced so rarely that their effect are not generally manifest; but in some localities, as in the mountains of Southern Tennessee, the seeds are abundant and their fatal effects are well known. We shall be glad of further testimony on this point, especially whether the species of the Pacific Coast, which is quite abundant in the northern part of California, has similiar properties.

**Clematis Pitcheri** is one of our native plants that the Europeans are in a curious muddle about. Some time ago the "Revue Horticole" figured a Clematis, with small, scarlet flowers, and called it *Clematis Pitcheri*. One English journal called attention to the blunder and stated, as is true, that Pitcher's Clematis has much larger flowers of a dull purple color. Another London journal comes to the aid of the French periodical, and saying that it knows that *C. Pitcheri* has scarlet flowers, as its Editor saw the first one that flowered in England. The facts in the case are: there is a rather rare scarlet-flowered Clematis in Texas, which has been called *C. coccinea*, though some of our botanists think it is a variety of *C. Viorna*. Evidently this rare scarlet species has found its way to Europe, and some one has blundered in calling it *C. Pitcheri*.

## A New Variegated Tea Rose—"American Banner."

BY PETER HENDERSON.

The most striking novelty that we have met with in our long experience with plants, is represented in the engraving. For the first time, so far as we can ascertain, we have obtained a Tea Rose distinctly striped with crimson and white, and at the same time retaining all the valuable qualities of its class—delicacy of color and texture, exquisite fragrance, and continuous bloom. We have long had striped varieties of the hardy garden roses, such as "York and Lancaster," etc., but these flower only once, and having but little merit are not generally known. This new variety originated in 1877 with George Cartwright, Esq., of Dedham, Mass., who states that this appeared as a "sport" upon the well known crimson Tea Rose—"Bon Silene." The leaf, from the axil of which the sporting shoot started, showed in one-half the leathery foliage of the "sport," while the other half had the foliage peculiar to "Bon Silene." We have frequently, in other plants, similar variations in the color of flowers; for example, it is quite common to find

VARIEGATED TEA ROSE—"AMERICAN BANNER."

one shoot of *Hibiscus Rosa-Sinensis* bearing orange colored, and another having crimson flowers, but the foliage in such cases remains unchanged.

Again, we have Carnations bearing at one time on the same plant, both plain scarlet flowers, and those striped with scarlet and white. So with Dahlias, Verbenas, Petunias, and scores of other plants; but in all of these the flowers only vary, the foliage does not. In the case of this new striped Rose, the distinct change in foliage is to me more marvellous than even that in the flower. We have named this Rose "American Banner," as the colors are very nearly those of the stripes of our National flag. When a name can be to some extent descriptive also, it is always, we think, of advantage.

## A New Quince—"The Champion."

When we consider the value of the quince, whether for home use or for market, we wonder at the little that has been done for its improvement. If we compare the older works on fruit with those of the present day, we find that but a single new variety has been added during the last half century. Under these circumstances we look upon a new comer with no little interest. We had heard of the Champion Quince, but had not seen it until Messrs. Bunnell & Perry, of Southport, Conn., sent us several specimens for examination and trial. The original tree is a seedling, which appeared in the grounds of Granville S. Perry, then a nurseryman at Georgetown, Ct., and attracted attention by its earliness of bearing and the uniformly large size of the fruit. It soon acquired a local reputation, and has since been placed in the trade. The fruit, as shown us, runs large, some specimens being 12 inches in circumference. In form it is intermediate between the well known Apple-shaped and Pear-shaped Quinces, though more like the former, and may be described as obscure pyriform, with the stem inserted at the base of a usually prominent lip, and inclined; the skin strongly russeted for a short distance around the stem. Calyx set in a remarkably deep and strongly corrugated basin. The skin of a lively yellow color. The fruit appears to keep well, as at the date of writing (December 2d) some specimens are still green. The flesh cooks very tender, and is of excellent quality. It is claimed that this bears earlier than any other variety.

## The Pitcher Plant in the Parlor.

The Pitcher Plant, also called Side-Saddle Flower and Huntsman's Cup, and Whipporwill's Shoe, (*Sarracenia purpurea*) of our swamps, is probably known to every one who notices wild plants at all. Its gracefully formed tubular leaves holding water, make it sufficiently unlike other northern plants to attract the notice of the most indifferent. Not long ago, as we were coming to the city, we met a man with an enormous basket filled with the largest and finest clumps of the plant that we ever saw together, and learned, upon inquiry, that he sold them "uptown," at the ridiculously low price of 10c. a plant. Only ten cents! It would not be possible to get anything from the tropical collection of hot-houses more intrinsically fine for $10. But then they are "common," any one can get them; and worse than all that, they grow wild. We know that these are to some, great faults in a plant, but we have worked to little purpose these many years, if we have not convinced some, at least, of our readers, that there are many wild plants worthy of a place in the garden, and here now is one that may claim a place in the parlor. Get a fine, large clump of the Pitcher Plant, and bring home some bog moss with it. Then select a dish or vase of some kind, if nothing better is at hand, a small bowl, but it will honor and dignify the choicest in the house. Set out the plant, using moss instead of earth for the roots, keep the moss wet, and the plant will remain fresh and bright all winter, and may even produce its curious flowers. It does better in a moderately heated room, and now and then should have a good showering to free it from dust. Those who can appreciate beauty of form, will find pleasure in the graceful curves of its outlines, and those who are fond of such speculations, can wonder why that particular plant was made in that particular shape....We are quite amused at the odd ways of the English horticulturists with this plant. Every now and then we are told that *Sarracenia purpurea* passed the winter at some place without protection,

and a recent writer in the "Gardener's Chronicle," tells us that it "can be grown in a cold frame, plunging the pots in winter, or it will succeed out of doors when a suitable position is found for it." All that the plant needs in England, is a swampy or marshy place; as its native range extends to the British Possessions around Hudson's Bay, it can not need protection in any part of England.

## Raising Evergreens from Seed.

With the increasing interest in the cultivation of forest trees, many, the coming spring, will make their first attempt at raising trees from seed. Those especially who sow the seeds of evergreens (by which we mean the cone-bearing trees) will meet with disappointments and surprises, and it is well to point out some of these in advance. One great obstacle to success in growing forest trees of all kinds from seed, is, that the novice does not recognize the fact that trees, no matter how hardy and robust they may be at maturity, are, when young, the most delicate of plants. Just as man, the most helpful of all animals, is in infancy the most utterly helpless of all, so the most hardy trees are in their early years the most exacting in their demands for care and protection. Of the millions of nuts and other tree-seeds that are self-sown every year, how few ever produce a tree? If this matter be examined, it will be found that it is only where every favorable condition is present, and especially a friendly shade is afforded by some shrub or other plant, that one of the many bushels of acorns ever becomes an oak. The Giant Cereus of the arid plains of Arizona and Northern Mexico, with its single column and candelabra forms, give a feature to the landscape unlike that to be seen elsewhere; they are types of ruggedness, and stand 30 to 50 feet high, resisting for years the fierce wind-storms of that country. Every one of these plants annually sheds seeds enough to overstock the country and make it to bristle with the prickly mousters. Yet it is only when a seed happens to germinate at the base of a mezquit or other shrub that shall afford protection to and nurse the plant in its early years, that a Giant Cereus is produced. The English timber-growers early learned that they could not raise their plantations of oak without the aid of "nurse-trees," and in the treatises on timber-growing of half a century or more ago, we find much space given to the discussion of the different "nurse-trees," as of equal importance with the trees they are to protect. But to return to the evergreens. We may state that, as a general rule, it will be of little use to undertake to raise evergreens from seed, unless one can give them the proper care; and one of the most important items included under "care" is a sufficient shade and shelter. Evergreen seedlings are sold so cheaply by those who make a business of raising them, that unless one has the time and the taste for such work, it will be far better to buy the seedlings than to raise them. Still we would not discourage those who would make the attempt, as there are no difficulties that may not be overcome by one who will devote himself to it. The largest nursery for the production of forest tree seedlings is that of R. Douglas & Sons, Waukegan, Ill. Here one may see acres devoted to seed-beds, and all under cover. Crotched posts are set in the ground, poles laid from one to the other, and across the poles is laid brush to make a rude but sufficient covering. This shelter, if we recollect rightly, is about 7 feet above the beds, at any rate high enough for men and a small horse or mule to work beneath it. It is only since their operations have become so large that this elevated screen has been adopted. Those whose sowing is on a small scale, can use the lattice screen that has been noticed in former articles. This may be made of common plasterer's laths, nailed to stronger strips, the laths being their own width apart, and the screen of a length convenient for handling. The laths are four feet long, and this is a convenient width for the beds, which should be a few inches above the general surface, and may have a board set on edge at front and rear, to hold the screens. As success with evergreen seedlings largely depends upon getting an early growth, so that they may be well rooted before the summer drouths come on, all preparatory work should be done well beforehand, so that the seeds may go into the ground as soon as it thaws in spring. There are some peculiarities about young evergreens that are puzzling to those who have never raised them. In most kinds the seed-leaves are unlike those of ordinary trees or other plants. In other seedlings, where the seed-leaves appear above the surface, we are accustomed to see two of them, usually thick and fleshy, and unlike the proper leaves which follow. In most evergreens, especially the pines, the seed-leaves are in a whorl of four, six, or even twelve, giving the unusual appearance to the little plant shown in figure 1. But a still greater departure from the ordinary way of seedlings is found in the Arbor Vitæs, Junipers, Cedars, and some others, in which the early leaves of the young plant are quite unlike those proper to the tree. So different is the general aspect of the seedling from that of the older plant, that growers have supposed that they had been furnished with the wrong seeds. This difference in foliage is strikingly seen in the Red Cedar, where the young trees for several years produce only sharp, spreading, needle-like leaved foliage, and quite different from the short, scale-like leaves of the tree. It sometimes happens that a branch of an old tree of the Red Cedar, whether from injury or not, we cannot say, will produce these prickly leaves, and form a cluster that shows a marked contrast to the rest of the tree. This change from the foliage of the young plant to that of the mature one, sometimes takes place the first year, but often not until later. The engraving (fig. 2) shows a seedling of the Gigantic Arbor Vitæ (*Thuja gigantea*) of Oregon, in which the change from the long, spreading, prickly leaves to the scale-like form has already begun in the first year. In some varieties of our common Arbor Vitæ, the young form of the leaves is retained for many years. That known as Tom Thumb Arbor Vitæ, is very dwarf and rounded in form, and only rarely produces the scale-like leaves. There are other varieties of this, and also of the Chinese or Oriental Arbor Vitæ (*Biota*), with the same peculiarity, and the very variable Retinisporas also afford examples of the retention of this early form of foliage for many years. Ordinarily, however, "the foliage of infancy," as it has been called, soon gives place to the characteristic form peculiar to the species.

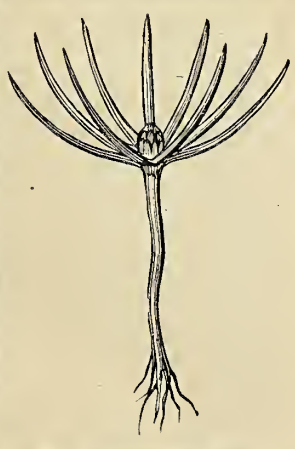


Fig. 1.—SEEDLING PINE.

Fig. 2.—SEEDLING OF GIGANTIC ARBOR VITÆ.

# THE HOUSEHOLD.

☞ *For other Household Items see "Basket" pages.*

## Home Topics.

BY FAITH ROCHESTER.

### Dressing the Children "with Limited Means."

I don't know by experience just how it seems to set about the clothing of a family of children, with no regard to expense, but I *do* know what it is to feel that many garments must be supplied before the severest winter weather comes, when there is little money in the purse, and little material in the closets, and drawers, that is available. I know exactly how to sympathize with the burdened mother who cannot possibly see where the material for the clothing is to come from, or the time and strength for the necessary sewing. It is hard to keep up one's courage in such a pinch, and when deliverance comes in some unexpected way, what a relief it is! But I confess to a considerable pleasure in some of the inventions which the necessities of straightened means entail upon us, if the thing does not go too far, and cause actual suffering. The little garments pieced up by some combination method are sometimes quite pretty and satisfactory. The dresses wear out first around the bottom. A broad stripe of strong fabric that harmonizes well with the old dress, remedies this evil. At the same time the dress can be pieced down if too short, by letting the broad stripe come down below the old skirt, with a strong new calico or cambric lining. If the dress has been worn without a sleeved apron, the sleeves are worn out too. New ones can be made like the broad stripe around the bottom; or like the body of the dress, and trimmed with the stripe material. If one prefers to have the child wear high-necked, long-sleeved aprons, the broad trimming at the bottom, with a neat finish at the neck and waists of the same, makes the old dress practically into a new one. Or, low-necked, sleeveless aprons can be worn, of a pretty graceful pattern, which shows only the shoulders, sleeves, and bottom of the dress skirt. All these may be covered with the new material if desired. I make all our clothes with a view to economy in washing, for our washings are inevitably large, let me save as best I can. In winter I want to keep as clear as possible of calico dresses—such a mass of calico must be washed, starched and ironed when the front of the garment is soiled. Calico or gingham aprons should take all this, to be worn with worsted skirts. Table bibs, made of calico or gingham, of generous size, buttoned around the neck by a strap, save some washing of children's aprons, but they must be encouraged to keep the bibs clean, for the sake of establishing cleanly habits as early as may be.

### Undersuits.

I saw an advertisement of Merino union undersuits for children, very cheap. I took the first opportunity to go in search of them, hoping to be saved some of my fall sewing. But the suits, unexceptionable in other respects, were made with short legs, the ribbed bottoms reaching only a trifle below the knee. It was worth something to see long sleeves provided, but why should the legs of children be left with less protection from the cold than the rest of the body? So I bought thick Shakers' flannel (much cheaper) to make suits covering the little bodies from wrists to ankles. They should be loose and easy in every part, with allowance for shrinkage and growth—though properly washed flannel need shrink but little, if any, and Shakers' flannel shrinks less than any other. I prefer to finish them without any cotton bindings or facings, because cotton washes harder than flannel

and needs extra rubbing. An edge crocheted with Shetland wool at the neck and wrists, makes a pretty finish. Woollen suits for small boys may be made just like those for girls. The legs should always slope by both outside and inside seams, from the calf of the leg down. Leave them open a few inches at the bottom of the inner seam, that they may lap smoothly under the stocking.

**Children's Garters.**

Children's stockings should not be fastened with elastic (or other) bands around the leg, as any band so applied interferes more or less with the circulation of the blood. Buttons should be sewed on the tops of the stockings, on the outer side of the leg, and elastic straps with button-holes at each end should fasten to these and to buttons on the under waists, under the arms. There are patent stocking-supporters much like this, only the strap forks above the knee and attaches to the stocking on the outside, and also on the inside of each stocking-leg. Home-made garters can be arranged the same way, but I find one fastening sufficient.

**Outer Drawers.**

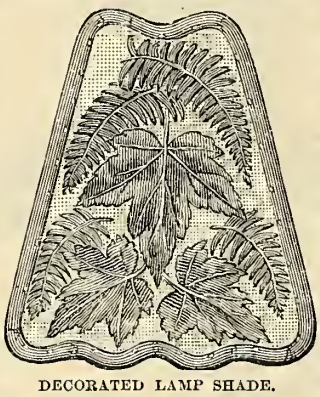
Let us cling to that most sensible fashion of putting colored drawers upon our little girls in winter. White seems the proper color for under clothing, and it is that idea, I suppose, which has made white almost universal for children's drawers. But all well-dressed children now are supposed to wear under flannels (or cotton flannels) in winter, so that the white cotton drawers are no longer absolutely under garments. They are even worn, in many cases, over red or grey flannel. Nothing in my wash-tub on Mondays needs harder rubbing than these same white drawers around the hems or trimming. Some strong, inconspicuous colored woollen or worsted goods is the most sensible material, gathered into a band and buttoned around the leg below the knee, never leaving any gap between the drawers and woollen stockings. The dress skirt should be long enough to conceal these drawers when standing. They look well made of the same material as the dress, and are best lined. I do not pretend to say that these are the most sensible winter drawers that I can imagine for little girls. Warm trousers reaching to the tops of the boots, are most reasonable for little girls and little boys too, but children must not be made uncomfortably *odd*. Leggins must be added for out-door use, and for extra cold days in-doors. Outer drawers and petticoat should button to a strong gingham or colored drilling waist worn over the undersuit.

**Advantages of "Plain Living."**

There are many good reasons for living on plain, simply-cooked but nourishing food. Variety is necessary—that is, a judicious mingling of dishes of grains, vegetables, fruits, and meats. There need be but few kinds at one meal if the family are agreed in their tastes. The larger the family, as a general rule, the more need of variety at each meal that each one may follow natural instinct in selection, as far as can be done with due reference to the rights of others. Plain living reduces not only our expenses, but our labor in the kitchen. Another important thing I have been taught by both reason and experience: plain living reduces our liability to diseases of all kinds. As I said recently, there has been but one case of absolute sickness (down sick in bed, undressed all day) in our little family of four children during the more than dozen years since the eldest was born. I think this is due to care in regard to the general rule of health, as no preventive or curative medicines—not even Catnip-tea or Camphor—have been used. Yesterday a daughter complained of a slight sore throat—a very unusual complaint here—and I felt some little uneasiness, as diphtheria is abroad in this part of the country (six children from one family buried lately in a city not far away), and a few cases in our own place. But I felt condemned for the dinner of the day before—hot bread pancakes, upon which I knew that the little girl was eating quite too much butter in a melting condition, followed by pumpkin pie, which disgraced me because it was too sweet and spicy for health. She had the good sense (or the cultivated instinct) to go without supper last night, and a wet cloth on her throat during sleep, covered by a dry one, perfected a cure of all sore throat. I know a family whose mother always dreaded the coming of winter, because croup, diphtheria, sore throats, coughs, and other cold weather diseases so threatened her children, and worried or seriously alarmed her; and then dreaded hot weather on account of children's bowel diseases—until she learned to regulate their health by regulating their diet. A bountiful but *plain* bill of fare in exchange for the "richer" or more highly-seasoned food common among prosperous people, has changed all that. A healthier flock of children, and a more happy and hopeful mother is seldom found. She almost never makes cake now-a-days, and pies very seldom, and then very plain ones. Children who live habitually on plain fare, show evil effects from rich food much more quickly than those who live regularly on the latter, and some suppose this proves that their stomachs are weaker on account of plain living, but I think it is because they have a more correct or healthy tone, and it seems to me fortunate that the first deviation from health is so quickly reported, and thus there is little danger of serious disease.

## A Pleasing Lamp Shade.

Not long ago we saw at a farm-house, where the mother had a happy tact of making much with simple means, a lamp shade, which had a richness of effect that one would hardly suppose possible from the very common materials entering into its make up. The shade was made of six pieces of perforated cardboard, of the shape shown in the engraving. In this case the pieces were 6 inches long, 5¼ inches wide below, and 3 inches above. Each of these was bound all around with narrow dark-green ribbon, and the pieces attached to one another by a few stitches above and below through the ribbon. This allowed—which is no small advantage—the whole to be folded, and occupy but small space when not in use. Each piece was ornamented by autumn leaves, bits of fern and moss; these were sewed to hold them firmly. In this case the leaves had been varnished, but if the lady will follow our suggestion to hereafter either oil the leaves, or dip them in paraffine, we think she will find it an improvement. A screen of this kind, before the leaves fade, presents a rich variety of colors; but this was the work of a former season, and though the autumnal tints had quite lost their brilliancy, the effect was still most pleasing, for the outlines were still perfect, and as these were well defined against the white ground of the card, their uniform neutral tint, while not so showy as the former bright colors, still made the shade decidedly ornamental.



DECORATED LAMP SHADE.

## Village, Farm and Home Improvement.—Dangers.

Just now there is a growing interest in village improvement, and we are glad to notice that Associations are being formed in various parts of the country, for combined effort to have better roads with shade-trees, better bridges, neater front-yards, and other surroundings, and whatever may make the village pleasanter to those who already live there, and attractive to those who are seeking rural homes. That we are heartily in favor of such plans, the whole past of the *American Agriculturist* is a witness, and we are entirely in sympathy with the recent agitation of the subject of which we have already given some account, and expect to give more. We have just one fear with respect to these "Village Improvement Associations," and that is, that they will not lay their foundations sufficiently deep. A lawn is a "thing of beauty," but to be a "joy forever," the soil down beneath the green carpet, must be deep, fine, and rich, or the hot suns of midsummer will make of the green carpet a brown one. So with "Village Improvements," they should begin below the surface, and the first essentials of drainage and sewerage should not be lost sight of in providing trees for shade and adornments. There is not the least reason why the two should not go hand in hand, were it not that some of those in charge of the improvements may look more to immediate effects than to permanent, but hidden work. One of the strong arguments in favor of "Village Improvement"—and it is a legitimate one—is, that the value of the property will be greatly enhanced. That a place with good and tree-margined roads, and neatness manifest in the surroundings of its houses will prove more attractive to the seeker for a rural home, than one where these are quite disregarded, is evident. But the city dweller seeking a place in the country at the present time, is not the same as the one of 20 years ago, when prices were high and money plenty. The first question the citizen of to-day who would become a suburban, is sure to ask is: "Do you have chills and fever? Is the place healthy?"—meaning of course, healthful — and similar inquiries which only can be favorably answered when drains, sewers, and other sanitary matters have been duly provided. It is well known that some of the most delightful localities within easy reach of New York City, those possessing every natural attraction, are largely undesirable on account of malaria. The very name *mal-aria*, meaning "bad air," indicates that it is avoidable by substituting good air for bad, and it is well known that by removing the contaminations, chills and fever, congestive fever, "dumb ague," and all the miseries produced by malaria, disappear. But malaria is not the only trouble due to local causes. That most alarming of epidemics—justly alarming in its suddenness, and in mainly finding its victims among children, diphtheria, is now classed among preventable diseases and is regarded as one of Nature's protests against the violation of the laws of health. We have not seen this matter set forth more clearly and tersely than in the report of Doct. E. M. Snow, the most efficient Health Registrar of Providence, R. I. He finds it his "duty to ask the attention of the people of Providence, and especially of parents, to the following statements." We also find it *our* "duty" to call the attention of the people of the whole world—for there are few parts of it not reached by the *American Agriculturist*—to his words when he says:

"1. No case of diphtheria occurs without an adequate cause. This is self-evident."

"2. The cause of nearly all cases of the disease exists in the houses or premises, or within a few feet of the houses where these cases occur."

"3. The cause of nearly all the cases that occur in this city, is breathing impure air from privy vaults or sink drains; or drinking impure water."

"4. Much observation and long continued and careful investigation have perfectly satisfied me of the truth of these propositions, and they are applicable to all cases, whether in the tenements of the poor or in the mansions of the rich."

These statements carry weight, for they are from one whose reputation as an authority in sanitary matters is world-wide. They, too, have an application beyond diphtheria—and stand with equal force for the slower but scarcely less fatal typhoid.

Let us beautify, let us make our roads as level as floors, let us plant trees, let us do away with unsightly fences, let us adorn our front-yards with figures of flowers on carpets of lawn, let us hide the crude carpentery of our verandas with graceful climbers—but first, before all and above all—let us look to the "privy-vault" and "sink-drain," as these stand for the wastes of our daily life which must be got rid of—and merely putting them beyond our sight is not getting rid of them. This removal of the wastes of the house is eminently a household matter, and is one that may properly occupy the attention of the

house-mother. At the beginning of the year, we naturally think of, and plan for improvements, and we belittle no others in claiming the first place for those that relate to the health of—indeed the life of — the household. Two of the greatest scourges of country life—typhoid fever and diphtheria—are by the highest authorities traced directly to the water we drink, and the air we breathe. The sources of contamination in both cases are the privy-vault and the sink-drain. In a matter of life and death we cannot be squeamish, but must speak plainly. Take the country through, outside of cities and places large enough for public sewerage, the condition of the privy-vaults is a disgrace to our civilization, a horror and a shame. If it were only an offense to our senses, this would call for a reform; but when we have the highest authority for the statement that it brings disease and death, why should we hesitate? There is no evil more easy to reform than this — reform it out of existence? Among all intelligent people, the privy-vault should be abolished. There is no need of discussing how far off the well must be to be safe from contamination, or how far from the house to avoid its odors —it simply need not exist. A privy-vault is no more needed on a farm or other place than a pillory —both are relics of a semi-civilized life. Be done with it altogether. The writer speaks from 10 years' experience, when he asserts that a privy-vault is an unnecessary nuisance. Dry earth or *coal* ashes are obtainable everywhere, and no consideration of expense need stand in the way of abolishing every vault on the continent, while every consideration of health, comfort and decency demand the change. We have already shown how easily it is to establish an earth closet, and for the benefit of many new readers must do so again, but at another time, as this article is already too long. The disposal of the vault danger is the easier of the two. The sink-drain question must be left to another month.

## Macaroni and its Uses.

In a notice of Miss Corson's little work on "25-cent Dinners," it was stated as one good feature of the book, that it recommended Macaroni, and told how to cook it. This cheap and very nutritious food may be cooked in a variety of acceptable styles, and is a most excellent substitute for vegetables. Potatoes are apt to be poor late in the season, and if macaroni be used instead, it will be found vastly more nutritious. Macaroni comes in boxes of about 25 lbs., and is sold by the box at an average price of 15–18c. per lb. It is in long pipes, or tubes, sometimes several feet in length, being bent over and over; it is a little larger round than a common lead pencil, and has a dull appearance, somewhat like that of horn. It is imported from Italy, and though it has been made in this country, and perhaps is still made, it is, for reasons to be explained presently, vastly inferior to the imported. Macaroni is really dried flour paste, but there is, as every housekeeper knows, a great difference in flour, and the kind best for bread is the poorest for macaroni, and vice-versa. Flour consists largely of starch. If we mix up some flour with water, to form dough, and tie a lump of this dough—say as big as a hen's egg—in a piece of muslin, and then hold it under a stream of water, and work it as the water flows, the starch will soon be washed out through the meshes of the muslin, when the water runs clear, showing that the starch has been washed out, if we open the cloth there will be found a small quantity of a pasty stringy mass—this is gluten. It differs from starch in containing nitrogen, and it will soon spoil. Starch is a *heat*-producing food, gluten is a *flesh*-forming food, really the most nutritious portion of the flour. Our best wheats make flour with 7 or 8 parts in the 100 of gluten. Other wheats contain about twice as much. It is only wheats rich in gluten that make good macaroni, and while the flour of our wheats make the best and lightest bread, it is only the wheats of the south of Europe, especially some kinds raised in certain localities in Italy, that make the best macaroni. This is why it can not be made successfully in this country—our flour is in one sense too good. The proper kind of flour is made into a stiff paste with water, well worked by means of a wooden bar, and then put into a mould in which it is subjected to great pressure. The mould has holes in it, of the proper shape, and the paste is forced out through these as fine threads, when it is called Vermicelli, or as pipes or tubes, when it is Macaroni. It is dried by a heat sufficiently to slightly bake it, when it is ready to be packed in boxes. The same paste rolled thin, and formed by proper cutters into squares, stars, hearts, etc., is known as Italian paste. Vermicelli and Italian Paste are rarely used except in soups. It will be seen that macaroni is the most nutritious of all farinaceous foods, and one that should be more generally known and used than it now is. We may add here, that it is a most excellent thing for explorers and other travellers—as we know from experience. Those who go on hunting and other excursions, which take them where vegetables are not procurable, will not miss these if there is a supply of macaroni. Old macaroni is sometimes infested by an insect which feeds within the cavity; upon holding the sticks up to the light this may be seen as a dark spot. In our first experience with macaroni, it seemed so hard and horn-like, that it was put to soak before cooking; as a consequence it was spoiled. It should be put at once into boiling water. The following directions for cooking it are from "25-cent Dinners," and abridged so far as they give matters already stated above. Miss Corson gives the following general directions under

MACARONI.—Wipe it carefully, break it in whatever lengths you want it, and put it into boiling water, to every quart of which half a tablespoonful of salt is added; you can boil an onion with it if you like the flavor; as soon as it is tender enough to yield easily when pressed between the fingers, drain it in a colander, saving its liquor for the next day's broth, and lay it in cold water until you want to use it. When more macaroni has been boiled than is used it can be kept perfectly good by laying it in fresh water, which must be changed every day. After boiling the macaroni, you can use it according to any of the following directions. Half a pound of uncooked macaroni will make a large dishful.

MACARONI, FARMERS' STYLE.—Boil half a pound of macaroni as above, and while you are draining it from the cold water, stir together over the fire one ounce each of butter and flour, and as soon as they bubble, gradually pour into the sauce they make, a pint of boiling water, beating it with a fork or egg whip until it is smooth; season it with a level teaspoonful of salt and a level saltspoonful of pepper, and put the macaroni in it to heat; then cut an onion into small shreds, and brown it over the fire in a very little fat; when both are done, dish the macaroni, and pour the onion out of the frying pan upon it. It is excellent; and ten cents will cover the cost of all of it.

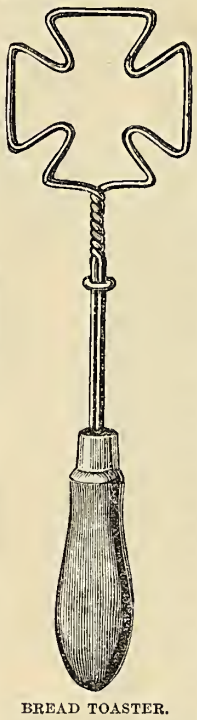
MACARONI WITH BROTH.—Put half a pound of macaroni, boiled as above and washed in cold water, over the fire with any kind of broth, or one pint of cold gravy and water; season it to taste with pepper and salt, and let it heat slowly for an hour, or less if you are in a hurry; then lay it on a flat dish, strew over it a few bread crumbs, which you will almost always have on hand if you save all the bits I speak of in the article on BREAD; then set the dish in the oven, or in front of the fire to brown. It will cost less than ten cents, and be delicious.

MACARONI WITH WHITE SAUCE.—Warm half a pound of macaroni, boiled and washed in cold water, as above, in the following sauce, and use it as soon as it is hot. Stir together over the fire one ounce each of butter and flour, pouring in one pint of boiling water and milk, as soon as the butter and flour are mixed; season it with salt and pepper to taste, and put the macaroni into it. This dish costs less than ten cents, and is very good and wholesome.

MACARONI WITH CHEESE.—Boil half a pound of macaroni, as above, put into a pudding dish in layers with quarter of a pound of cheese, (cost four cents,) grated and mixed between the layers; season with pepper and salt to taste; put a very little butter and some bread crumbs over it, and brown it in the oven. It will make as hearty and strengthening a meal as meat, and cost about twelve cents.

## A Convenient Small Toaster.

A toasting-fork is not a convenient affair to use over a stove fire, the position in which it must be held exposes the hands unpleasantly to heat, and there is danger that the slice will fall off. The engraving shows a small toaster, which we find better than a fork. It is made of copper wire, a little larger than a common knitting needle, bent into the form there shown. The broad part is 5 inches across each way; the wire being bent in the form of a Maltese cross, is much firmer than a simple square or circle would be. Below this part the ends of the wire are twisted together for about an inch, and lie side by side until they enter the handle; this straight portion is 7 inches long, and fits into a wooden handle of about the same length. There are two pieces like this—but one, to avoid confusion, being shown—set into the handle in such a manner as to spring apart an inch or more; a common curtain ring slides upon the straight portion, to bring the two halves together and hold the bread. It takes two and a quarter yards of wire, which should be cut in halves, and the bending to form the cross should begin in the middle of each. This toaster may be made in a very short time, and is a neat present for a boy to make his mother.



BREAD TOASTER.

## Coal Fires—Practical Hints.

So much of comfort, health, and economy, depends upon the proper management of coal fires during winter, that we offer a few common-sense suggestions which may be new to some of the readers of the *American Agriculturist*, who have not given thought to the subject.—In *renewing* a fire in a stove or furnace, it is customary to dash in a lot of coal, entirely covering that already on fire. The result is a cold spell, cessation of cooking, etc., for half an hour, more or less, depending upon the kind of coal, its size and quantity, the draft, and the amount already ignited. Often the fire vexatiously goes out. This can be avoided by piling all the fresh coal upon only half or so of that already on fire. The burning portion will partially maintain the heat, will keep up a draft, and rapidly extend through the fresh coal. When that is well on fire, it can be spread over the whole, or, if needed, more coal can be put in on the other side, leaving the new coal well burning. In this way a *continuous* heat can be maintained, with far less risk of extinguishing what we have. This may seem a small matter, but it will often contribute a great deal to comfort, and often save weak or sickly or damp persons from taking or increasing a cold. In the kitchen it may save the spoiling of good cooking or baking. In large steamships, a steady power is kept up by having several fire-boxes under the same boiler, and replenishing only one at a time.

When a coal fire is almost out, it can be started afresh by first adding a little fine coal over the fire, with a bit or two of dry wood if needed, and covering all around it with coal enough to concentrate the draft upon the little fire remaining.

### Starting Coal Fires.

In *starting* a fire, a great point is to concentrate the draft. If kindling wood is abundant and cheap, a large quantity may be thrown in and fired, and when well ignited, the coal thrown on freely. But usually it is better to put a little kindling in a pretty compact heap *in one place*, at the middle of the grating; when well started, put over it a little

fine coal, and cover all the rest of the grate with at least coal enough to turn the draft of air through the kindling point. It will burn more certainly and more rapidly, and extend to the rest of the mass much sooner than if the kindlings were spread out so as to give no strong heat to the hard coal at any one point.—The best kindling for hard coal, is a few shavings or paper to catch from the match; over this a little pine, cut short; and over this charcoal, or *dry* hard wood only half a foot or so in length, and split fine—all the kindling in one pretty compact mass. The point is to get heat enough to ignite the *hard* coal. When the draft is not strong, or one is in haste, cover all the grating with a few thicknesses of waste newspaper, or any coarse paper, with some coal upon it, except right under the kindlings. This will concentrate the draft at that point, and greatly hasten ignition. The paper will burn off as the fire spreads, and admit the air to other points.

### Saving Coal.

In mild weather, much coal may be saved in large stoves, or furnaces, or grates, by covering a part of the grating with brick, or flat stones, or clay even, or by covering part of the coal with fine ashes, so that the draft of air can only pass through a part of it. A little skill and care in this will effect a great saving of fuel, and supply an amount of heat adapted to the weather, or to the rooms to be warmed. We prefer a pretty large fire-box in a stove or furnace, and in the cook stove even, the burning portion or surface to be contracted or regulated as above; we then have ample room for a large fire when it is wanted in extreme cold weather, or for an emergency. The brick or clay can be readily removed from any part of the grating as desired.

### Size of Coal.

The smallest coal that will not drop through the grating is usually the most economical for all fires, even for large heating furnaces. Large lump, or egg coal even, requires a considerable depth of mass to burn well, or indeed to keep ignited at all. Fine coal two or three inches in depth will keep on fire, and its rapidity of burning can be easily regulated by the dampers, or opening the upper door, or by covering a part or the whole with ashes to be raked off or shaken out as necessary. For the cooking stove or range, with three tons of moderately small "stove-coal" size, we buy one ton of "chestnut" or "nut" size, to be used in kindling, in starting up afresh quickly, and when only a small fire is wanted for a short time. For the largest heating furnace we use "egg" size (not lump), and with each four or five tons, one ton of stove size, and half a ton of chestnut size—the smaller sizes for kindling, and renewing, and when but little fire is required—regulating consumption by dampers, or ash covering, or stopping part of the grating.

**Soda and Hot Water.**—Every now and then a recipe comes to us, directing a certain amount of soda which is to be dissolved in "hot water" before adding it to the preparation. The "soda" referred to is of course that known as cooking or baking soda—the bicarbonate of soda of the shops. "Hot water" is not very definite, but many thinking "the hotter the better" will use boiling water, and thus render the soda in good part useless. We use soda with sour milk, molasses, or wherever an *acid* is present (as there usually is in molasses, even though it is *sweet*), for a double purpose: in the first place to neutralize the acid, and secondly that the carbonic acid (a gas) set free by this action of the acid upon the soda, may permeate the mixture in minute bubbles, and, when these bubbles are expanded by the heat of cooking, make the article "light." We use washing soda for cleansing purposes and the other kind in cooking. Why? Because, supposing both to be pure, the cooking soda contains twice as much carbonic acid—the gas just mentioned—as washing soda does. So far as merely neutralizing acid goes, washing soda is as good as the other, which is preferable merely because it gives off more gas. If we heat baking soda, the extra quantity of gas is driven off, and it is reduced to common or washing soda. A similar thing happens if baking soda is placed in boiling water—a large share of its carbonic acid is driven off; even if the water is but scalding hot, some will pass away. It will be seen, then, that to dissolve cooking soda in *hot* water we reduce it to the condition of washing soda, more or less, as the water is hotter or cooler, and if boiling water be used we might almost as well take the common soda at the start. Hence, when soda is to be dissolved for use in cooking, let the liquid be merely blood-warm.

## BOYS & GIRLS' COLUMNS.

### "Please, Give Us More Plays!"

writes one of our young readers, for, she says, "we only have our Church paper and the *American Agriculturist*, and the Church paper is for Sunday-reading."—Well, we will try to gratify such readers, for we believe all children should play *some*. This month we are too busy in reading the hundreds of letters, on a great many subjects, from renewing subscribers that come every day. But we must try to mix in good instruction, as well, for we want every young person to *learn something new* in every number, something that will be useful or of interest all their lives, something that will set them to thinking about other things. A play or puzzle interests for an hour, and that is the end of it. But we will try hereafter to give the

"UTILE CUM DULCE."

There! We have got in one of those "foreign phrases," before we thought of it. As it is written down, we will explain it, so that you will always know what it means, when you see it. "*Utile*" is the Latin for useful, beneficial, valuable. Our word Useful came from it. "*Cum*" is the same as our preposition, with. "*Dulce*," means sweet, pleasant, delightful. So, "*Utile cum dulce*" means, the useful *with* the pleasant. That will be our motto in this department during the present year; and, though we do not write it out in Latin again, you will know what it means, and what we will try to give our young friends.

No. 464.—**Puzzle Picture.**—Well! we should not have thought it possible, but really a whole year has passed since we have had a Puzzle Picture. There have been so many real natural puzzles in microscopic and other matters, that we have not thought of the artificial

ones. A year makes a great change in our *Agriculturist* family of youngsters. New children come in, and others, feeling that they are no longer boys and girls, cease to take interest in puzzles of any kind, but turn to the parts of the paper intended for older persons. It may be necessary to say to the new comers that a puzzle picture is intended to give you a little trouble, that you may show your skill. It is in fact a double picture; one made up of certain parts that strike the eye at once, and the other of parts which are so arranged that you do not notice them at first sight, but when once seen, are very plain, and, indeed, you cannot avoid seeing them, and only wonder why they were not plain at first. Of this kind is the above rural scene, taken evidently just in the season of hay-making. The frog evidently admires the view, but whether it is the hay-cock, that so surprises him, or something else, you can perhaps find out if you look.

## Our Puzzle-Box.

SYNCOPATIONS.

(*Example.*—Syncopate a bird and leave an animal. *Crow, cow.*

1. Syncopate a flower and leave an animal.
2. Syncopate an article of clothing and leave an animal.
3. Syncopate another animal and leave a dwelling.
4. Syncopate a fish and leave an article of dress.
5. Syncopate a relative and leave an insect.
6. Syncopate an excuse and leave a vegetable.
7. Syncopate a tropical plant and leave a beverage.
8. Syncopate a pipe and leave a color.
9. Syncopate a volume and leave an extremity.
10. Syncopate a metal and leave a boy. ISOLA.

HIDDEN LITERARY CELEBRITIES.

1. I understand that he will keep operatic pieces.
2. Long rays of light emanated therefrom.
3. His cottage stands in a sequestered vale.
4. I saw the rascal make at Sam with a dagger.
5. He wrote several beautiful pieces of poetry.
6. Your friend Will is not at home.
7. Thomas where is the cow? Perhaps she is in the field.
8. He saw a red ant eating his winter store of provisions.

ALPHABETICAL ARITHMETIC.

C T S H ) L O T M E I Y ( H I L E
C T S H
E C Y S E
E H H E I
Y M H L I
Y I I Y L
H O E S Y
H S T O E
S H Y S

NUMERICAL ENIGMAS.

1. I am composed of 11 letters:
My 10, 1, 5, 11, is a course.
My 2, 6, 4, 7, 8, is crime.
My 3, 9, 11, is a bitter plant.
My whole is husbandry. ST. CLAIR & DE LEON.

2. I am composed of 12 letters:
My 6, 5, 3, 8, 12, 1, 4, is an animal.
My 8, 7, 2, 9, is a household article.
My 4, 3, 11, is a small mark.
My 5, 10, 1, is a member of the body.
My whole is the name of a river. A. L. PARKYN.

3. I am composed of 43 letters:
My 22, 33, 9, 36, 31, is a vessel.
My 15, 1, 11, 38, 18, 43, to give notice.
My 27, 5, 23, 29, 37, to strip.
My 3, 24, 17, 40, 21, 30, a check.
My 10, 32, 14, 2, 39, 4, to exalt.
My 7, 42, 12, 26, 13, 34, imposition.
My 41, 20, 19, 25, 35, one unwise.
My 16, 28, 6, to cast.
My 8, is a vowel.
My whole is a quotation from Washington Irving.
C. B. R.

CROSS-WORD.

My first is in bottle but not in wine,
My next is in cattle but not in swine.
My third is in coffee but not in tea,
My fourth is in arbor but not in tree,
My fifth is in yellow but not in blue,
My sixth is in me but not in you,
My seventh is in tatter but not in rag,
My eighth is in tarry but not in lag,
My ninth is in silver but not in gold,
My whole was a soldier, brave and bold.
FRANK L. H.

PI.

Helawnebo si on ebon ta lal; ron seod ti spessos nay stripporee fo heon. Ti si a stabsecun cheattad ot het rowel waj fo eth ahewl, dan emses ot nastir het trawe, cwihh eth ruetrace eskat pu ni greal sluftohum.

DOUBLE ACROSTIC.

Primals and finals name two places where battles were fought during the revolutionary war.

1. An Indian chief.
2. A mythological ship.
3. A singing bird.
4. Part of the body.
5. A garden vegetable.
6. A kind of brass.
7. A domestic animal.
8. A forest tree. ISOLA.

BLANK ANAGRAMS.

(The italicised words in a sentence, transposed into the original word, will fill the blank and complete the sense.)

1. He is always in search of ——; nothing *ever daunts* him.
2. General! *Our best Indian* is ——!
3. Has *Louisa gone* to get that —— compound?
4. We bought *our petrels* at the ——.
5. *Dear sir, save* me from my ——.
6. *Ask Mat how* he liked the ——.
7. Sometimes the —— *rise late.*
8. *Act, I pray,* with less ——.
9. *O! let me sit* under the ——.

Puzzles, answers, and such matters as were formerly directed to "Aunt Sue," may hereafter be sent to "The Doctor," No. 245 Broadway, New York.

ANSWERS TO PUZZLES IN THE NOVEMBER NUMBER.

NUMERICAL ENIGMA.—John Halifax, by Miss Mulock.

PI.—The world is a looking-glass, and gives back to every man the reflection of his own face. Frown at it and it will in turn look surly upon you; laugh at it and with it, and it is a jolly, kind companion.

ANAGRAMS.—1. Particular. 2. Chrysalis. 3. Indomitable. 4. Malevolent. 5. Advocates. 6. Greediness. 7. Consternation. 8. Terrifying. 9. Landscapes. 10. Escapade.

GEOGRAPHICAL DOUBLE ACROSTIC.

Hindostan—Gibraltar
H— eidelber —G
I— tr —I
N— obo —B
D— enve —R
O— mah —A
S— andy Hil —L
T— remon —T
A— requip —A
N—orth Rive—R

WELL-KNOWN CITIES CONCEALED.

1. Troy. 5. London.
2. Boston. 6. Rome.
3. Toronto. 7. Trenton.
4. Hartford. 8. Concord.
9. Salem.

CROSS-WORD.
The Marchioness.

CHARADE.
Foxglove.

## The Doctor's Correspondence.

Chas. L. J., Elgin, Ill., wishes to know "ABOUT DATES which come in coarse bags with long seeds mixed in a sort of preserve." I suppose that many boys and girls who have eaten dates would like to be told something about them, and will be surprised to learn that this sweetish mass which they buy as a curiosity or a treat, and soon tire of, forms the almost sole food of many people. But first let me describe how it grows. The Date is the fruit of a Palm—the Date Palm—and whenever you find the Palm mentioned in the Scriptures, it is supposed that this is the one referred to. The palms are all unlike any of our trees. They have a tall, straight trunk—most of them never branch—and at the very top a crown of long fan-like leaves. The engraving, fig. 3, will give you the appearance of the Date-tree, though that being taken from a young tree in Florida, is not so tall as the full-grown ones. If you will imagine a tree like that in figure 3, about 18 inches through, and rising a straight naked column about the same size all the way to 40 and even 60 feet, you can form an idea of the appearance of this

Fig. 1.—THE DATE.

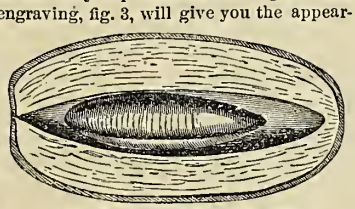


Fig. 2.—SECTION OF DATE.

MOST NOBLE AND USEFUL PALM.

I can not recollect that I ever saw but one full-grown Date-tree. That was many years ago, when I was with a party travelling towards the City of Ures (pronounced *Oores*), which was then the capital of the Mexican State of Sonora. It was a bright Sunday morning as we left our camp and started towards the City. After a while a spot appeared against the sky; one of our Mexicans pointed it out with much glee, saying, Ures! Ures!!—After an hour's travel the spot against the sky grew more distinct, and I could make out palm leaves. Bang—bang

Fig. 3.—THE DATE PALM.

—went distant cannon, and every Mexican's hat came off for a minute, when it was replaced with, Ures! Ures!! again. Every considerable Mexican town is a military post, and at a certain point in the services of the church the soldiers discharge their guns, or the cannon, if they happen to have them. This palm-tree grew more and more distinct, at last we crossed a little stream and seemed very near it. We are in Ures, said the Mexicans. Surely enough we were. The one story *adobe* (sun-dried brick) houses, mostly of the same color as the ground they stood upon, were so hidden by trees that we did not see them. We had not been looking down for a city, but *up*, and this one Date Palm—it must have been 50 feet high—was the only conspicuous thing about it. We had to stay in that clutter of mud houses for several weeks, on account of an accident to a member of our party, and the one thing that made the town to me, was that one Date-tree, and I often thought what a blessing that tree was to the people living there, to always give them

SOMETHING HIGHER TO LOOK UP TO!

But in giving my "traveler's yarn," I am getting away from the date story. The Date Palm has its pistillate—or fruit-bearing flowers, and its staminate, or pollen-bearing ones, on different trees. Both kinds of flowers are at first—in the bud—enclosed in a hard case or sheath, as shown in fig. 4; this bursts open and falls away when the flowers are ready to bloom; the flowers are small and not showy, but in immense numbers; some are shown separate in the engraving. The cluster of fruit, when ripe, is made up of long strands. The dates as you find them in the mats give you but little idea of their appearance. Figure 1 shows the fruit, perhaps a third less than the real size; when ripened on the tree they are very rich and pulpy. If to be sent away, they are picked somewhat before they are quite ripe and dried, and in this unpressed condition small quantities are imported into New York and other cities, but as they are rather expensive, I doubt if many are sent to the inland towns. These appear like fig. 1, but larger, are of an amber-color, and when cut open show the seed or Date-stone within a cavity, as in figure 2. The fruit in this state is very tender, and without the cloying sweetness of

THE DATES IN MATS,

which are not, as many suppose, preserved in sugar. They are simply the ripe dates crowded into bags of matting, by which they lose their shape and are pressed flat. It is in this form that they are put up for keeping and commerce. The date is abundant all through northern Africa, and has been taken to other countries where the climate is sufficiently warm to allow it to perfect its fruit. Some wandering tribes of the deserts live almost entirely upon dates, and a failure of the date crop—which rarely happens—is a great calamity. Nearly every part of the tree serves the people, where it abounds, for some use. The trunk supplies timber, the leaves are made into baskets and bags, and even the stones or seeds serve as food for the camels. Date-stones usually germinate readily, and if you care to plant some in a pot or box, you can learn how the Date-tree looks when young. ....Thos. S. M., of Lawrence, Kas., wishes me to tell him

ABOUT COLLODION,

and why it is used in taking photographs. Collodion—from a Greek word, meaning "to stick"—came about very curiously. About 30 years ago, a German chemist wiped up some acid with a lock of cotton, and when he threw it into the fire, noticed that it burned with a flash, and differently from common cotton. He took the hint, and made experiments, and found by soaking cotton in a mixture of nitric and sulphuric acids, washing and drying it, that, while it looked like ordinary cotton, it would explode with great force—with more power than gunpowder. This was called gun-cotton, and while it is not much used for guns, it is sometimes employed in blasting. A medical student in Boston discovered that gun-cotton would dissolve in ether, and make a varnish which he called *collodion*; he found it dried upon his fingers, as a film which would not wash off, and was transparent. It occurred to him that this might be used for dressing wounds, and it is still employed in some cases, and still sold as liquid court plaster and liquid cuticle, to cover places where the skin has been knocked off, and for such uses. But the greatest use of collodion is in photography; it dries very rapidly, and forms a thin, transparent film. Some of the chemical substances used in taking photographs are dissolved in collodion; a little of this poured upon a clean plate of glass at once spreads evenly over the glass, the ether dries away in a few minutes, and there is a transparent coating of the needed kind for the light to act upon, in taking the picture. Of course, this is a mere outline, and does not pretend to tell all about taking the picture—only the use of collodion, in doing it. See what a great thing has come from a mere trifle—our portraits and views, which are often so dear to us, are all due to that sharp-eyed Schonbien, the chemist, who would not let such a trifle as the unusual burning of a bit of waste cotton pass, without looking into the cause, and following it up. At first it was thought that gun-cotton would supersede gunpowder, but there are reasons why it is of but little use as a destructive and life destroying agent, while it has found a more peaceful as well as more beneficent work to do.

Fig. 4.—FLOWERS OF DATE PALM IN SHEATH AND SEPARATE.

HARD TO GUESS—DIFFICULT QUESTIONS.

Our young friend, "W. J. E.," Newark, N. J., found some little black things, about the size of a flax-seed, in a decayed squash; finding something alive within them he put them in a bottle; afterwards he found a large fly in the bottle, and one of his little black bodies empty; he asks me to tell "what they were, and all about them?"—It is not always an easy matter to say what an insect is, if I have it before me, but to give a name from no other description than "a large fly" is impossible. I mention this case, because it is of a kind that happens frequently, and it will explain why a number of questions have not been answered. I am desirous of helping you learn about such things, but you must do something towards it yourself. When you send me an insect or other matter that you would know something about, you may be sure that I do not give it up without a trial; but when you simply say "a large fly," I give it up at once. Some questions are not answered because they do not belong to our paper at all, and especially not to the boys and girls part of it. For example, one boy wishes me to tell about Hindoo arithmetic, another how to make Lager Beer—and another about training trotting horses!

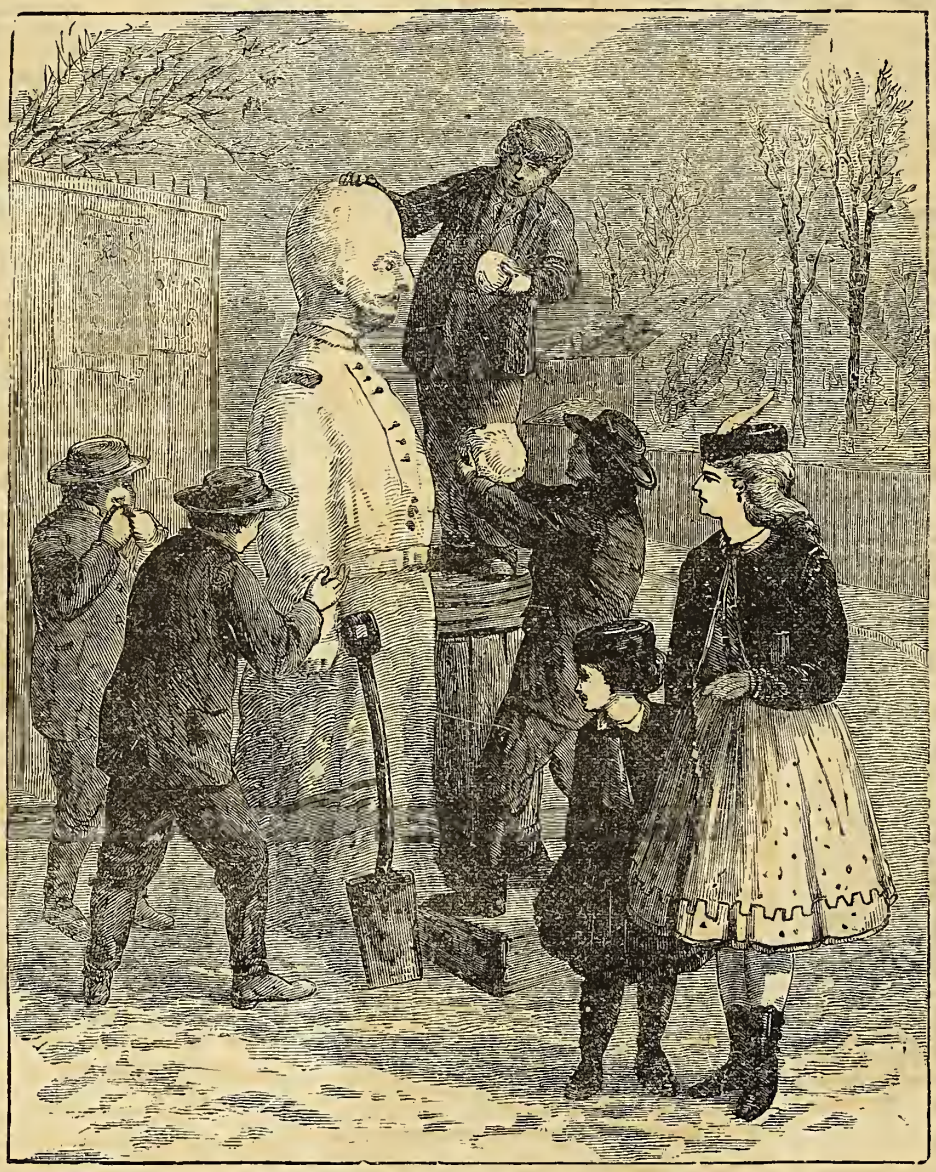
**To tell a Missing Figure.**—Here is a little trick with figures, that is very puzzling until one knows how it is done, and after one knows it, that it should be so is not the less puzzling. Ask another to put down several figures to make a high number. Suppose 18273645. Tell him to add these figures, which, in this case, will give 36. Then subtract this sum from the figure 18273645—36=18273609. All this while you have not seen the figures. Tell him to cross out one of these

figures, add up what are left, and name the amount, and you will at once tell him what figure he erased. Suppose he erases the figure 7—the remainder added together make 29. The difference between this figure and the multiple of 9 that is next higher, will give the numeral crossed out. The next multiple of 9 to 29 is 36—and the difference between 29 and 36 is 7, the figure removed.

## Shadow Games.

A great deal of amusement can be made with shadows, and with a little forethought, one can provide a capital entertainment for a holiday or other winter evening party. Almost every one is aware of the great variety of shadows that may be made by bolding the hands in different positions. You have only to recollect that it is the *outline* that makes the shadow, to see at once how many droll and striking things can be shown in this manner. You wish for example, to show a particular head-dress. It makes no difference what the material, if it will cast a shadow, or what the rest of it is, so that the outline is as desired. With a newspaper or two and a few pins, you can make any kind of bonnet or head-dress; strips of paper drawn across a knife will make curls, and a paper feather may be clipped in a few minutes that will make as fine a shadow as the most costly ostrich feather. So in disguising or costuming, paper, rugs, shawls, pillows, and the like, will allow comical or elegant figures to be made at pleasure, and if one wishes crowns, sceptres, keys, and other emblems, brown paper stiff enough to hold its shape, or thin paste-board, old ribbon and other boxes that may be had at the stores for the asking, will answer as well as the real thing. It will be very easy to make strangely shaped foreheads, comical noses and wonderful chins out of paper, and these may be held in place by coarse thread or small twine passed around the head, as this does not show. In showing shadow pictures, suspend a sheet across a door, all the better if a wide or folding door. The company are to be upon one side and in the dark. On the other side there should be but *one* very strong light, and it will be all the better if this has a reflector. If you have two lights, the shadows will be double and spoil all. This light should be fixed in some secure position at a hight about opposite the performers' heads; the best distance from the sheet will be found by trial. The performers should stand close to the sheet to give a clear shadow, and each one should recollect to hold whatever they may have, and also to hold themselves in just the position to make the best shadow. Then a story or poem should be selected which allows of considerable movement, and the characters arranged before hand to illustrate the story while it is being read. Some of the wonderful and improbable Arabian Night's tales would make capital subjects. Comic pieces like Holmes' poem, "The Tall Young Oysterman," will afford much fun if illustrated by ridiculous shadows. Of course such things go off better if a rehearsal can be had before band.

**The Paper now in Your Hands Came from Egypt! — Interesting Items.** — Most persons highly value anything coming from a distant foreign land, as from Palestine, or Egpyt, etc. Well, with *this* copy of the *American Agriculturist* in your hands, you actually hold something that has come all the way from Egpyt in Northeastern Africa, and this is how it came about: You know that in Egypt, as in many other places, the people have but few books or newspapers, and don't write many letters, and so they need very little printing or writing paper, and what they do use is mostly made elsewhere. Of course they want few *rags* to make paper of. But they are very saving. Every bit of rag is gathered, washed and sold, or exchanged for confectionery, etc., and especially for cheap, coarse earthern jars and vases, mostly white, but roughly painted in bright colors, which are bought for ornaments in their poor rooms. The dealers find among these rags, hundreds of rag dolls which often have hair sewed on their heads. The rag merchants do a large business there. The Seymour Paper Co., that made *this* paper, has agents in Egypt, who send over for the mills at Windsor Locks up in Connecticut, a good many ship-loads of these rags every year. They have "Shoonah's" (warehouses), in Alexandria and Cairo, with dusters, presses, steam-engines, etc., to prepare the rags for sending them, in full ship-loads, direct from Alexandria to New Haven. At the mills, the rags are bleached white, and ground or cut into fine pulp; this is floated in water upon an endless sieve; as it moves along, it is shaken sidewise to intermingle the fine fibres of the pulp; the water falls through; the sheet of pulp is taken off by cylinders, some of them heated by steam inside; these press the fibres together firmly and dry them; the paper is coated with a sizing preparation, smoothed and dried and ironed (or "calendered"), by heavy, hot rollers, then cut up into sheets 39x52½ inches, packed in bundles of 1000 sheets, and sent to N. Y. by R. R. and Steamboat, to be printed here. In order that the paper may be strong and durable, no clay, no straw or wood, which enter largely into the manufacture of most paper now made, is allowed in the printing paper for this Journal; but it is made of all pure linen and cotton rags, and we happen to know that *these rags all came from Egypt.* The original cotton probably grew in our country, and the linen in the North of Ireland; they were made into cloth in England, sent to Egypt and worn there to rags; then gathered as above, and *now you hold them in your hands.* If you look at the paper with your microscope, you can see the fine fibres—cotton fibres from several of our Southern States, mingled and arm-locked with linen ones from the Emerald Isle. If they could speak, what a story each fibre could tell of its origin, its wandering, its treatment, and what it had seen.



A SNOW MAN IN UNIFORM.

## Winter Ways—The Snow Man.

The boy—or girl, either—who never helped make a snow man, has never had half the fun that winter brings. There is something about the first snow—not the mere flurry—but the right down good snow storm—the kind that old people call "old-fashioned"—that sets youngsters into a state of excitement. This is natural enough, for do they not find everything changed as they look out in the morning? When they went to bed there were a few flakes falling, but all night long, while they have been sleeping, the snow has come down; fast and faster have come the soft white flakes, and silently have they fallen upon one another, and in the morning—what a change! You can see by the fences where the road ought to be; there is the well curb, and yonder the hay-stacks—but all the paths, the low stone walls, the horse block—all out of sight, and only one broad plain of white so far as can be seen. No wonder that this change excites young folks. All is different around them, and they feel like doing something different themselves. But work first and play afterwards, and now the work can be half play, for the clearing of paths, sweeping off steps, at first real fun, gets to very much like work by the time it is finished. But the time for play comes, and the play must of course have something to do with the snow. Boys settle down upon one of two things—a snow fort or a snow man—and if girls have a voice in the matter, it is likely to be the man, for if there is a fort there must be a snow-ball fight, and that is rather rough for girls. But at the first the snow is too light for either, and the youngsters find they must wait for a day or two until the snow settles, before they can enjoy the fun. When the snow will pack, when it will gather by rolling, and a small ball will soon roll into a large one, then the snow man can be made. Generally one boy is the head sculptor, and the rest help. Very droll affairs these snow men often are, and we have thought if one could get a few dozens of them together, they would make about as funny an art gallery as would the same number of the images that stand for Indians at the doors of the city tobacco shops. First a big ball, as large as all hands can roll, is made for the foundation of the man. Next a smaller one, for the body, must be rolled up by the help of a board, and be placed upon the other. Then a still smaller one is lifted up for the head. These are the raw material, the marble, and when this is ready the work of the artist may begin. It is well to decide beforehand what kind of a man it shall be, else where several work at it there will be confusion. The young people in the picture had a military idea, and they are trying to work out the form of a General. The head seems large for the body—but perhaps they have heard that Napoleon or other great General had a "long head." If you wish the man to last—and if well built and favorable weather follows, one will stand a surprisingly long time—you will join on the head by means of a stake run down through the body, and if the arms are to do anything but hang down by the sides, some sticks must be thrust into the body to build the snow around. Of course you will think of bits of coal for the eyes, and if something can be found to serve for buttons, all the better for the coat. In making the snow man, start with a big mass of snow, and then carefully cut and scrape away all that hides the man you would make. You have the advantage over the worker in marble. If you cut away too much, you can plaster on some more snow and try again, but the marble once chipped away can not be replaced. One word of caution about your snow man—Do not make him near the road. Horses are readily frightened at unusual objects, and even a very steady, gentle horse may take fright at such a figure, and your sport be the cause of a sad result.

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has been granted by the English Government to the manufacturers of **Higgin's Eureka Salt,** of which the following prominent American Dairymen say:

From HON. HARRIS LEWIS, of Herkimer Co., a practical Dairyman, and President of the N. Y. Dairyman's Ass'n.:

"In my system of making Butter by the Granular process, the size and form of the Grain of Higgin's Eureka Salt is such that it is peculiarly adapted for salting it. I find by use that it will dissolve in from six to eight hours after it is incorporated with the Butter, and that the Butter is much better worked and packed, as soon as the Salt dissolves.

"A coarse-grained Salt, like other imported Salt, requires at least twenty to twenty-four hours, to assume the same condition, that Butter salted with "Eureka" Salt does in six honrs, rendering exposure to the atmosphere, whether good or bad, nearly four times as long as with Eureka. It is unnecessary for me to state, that the sooner the Salt is incorporated with the Butter, and the Butter Packed, the more of the natural and delicious flavor of the Butter is retained. HARRIS LEWIS.

"FRANKFORT, N.Y., Dec. 4, 1878."

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"GENTLEMEN—Having used Higgin's Eureka Salt in my cheese factories since the 15th of August, 1878, I have become thoroughly convinced of its superiority over any other Brand of Salt for Cheese, by observing its uniform and prompt action upon the curd, dissolving readily, making a fine silky curd, adding to its keeping qualities, and giving and retaining a fine flavor, and improving its solidity in a greater degree than in Cheese salted with other Salt, also improving the surface of the Cheese.

"Cheese-Making has been my principal business for the past fourteen years. I think I have made fine cheese, but certainly believe I never made so fine a cheese as I have since using the Eureka Salt. J. H. GETMAN.

"COLUMBIA, Herkimer Co., N. Y., Dec. 5, 1878."

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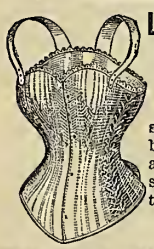

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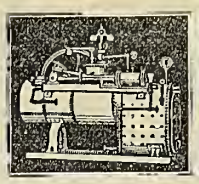

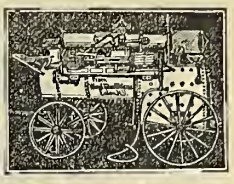

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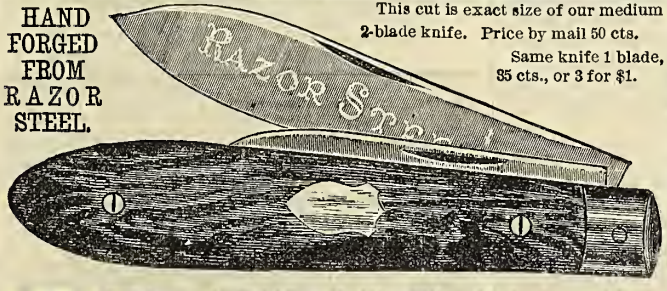


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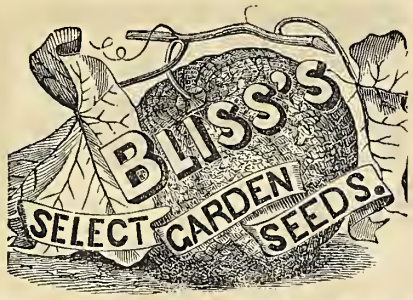


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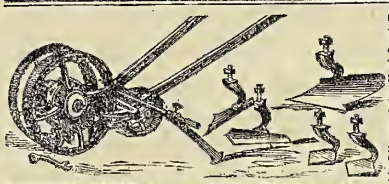

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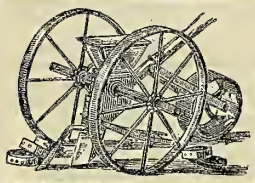

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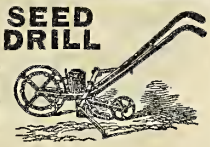

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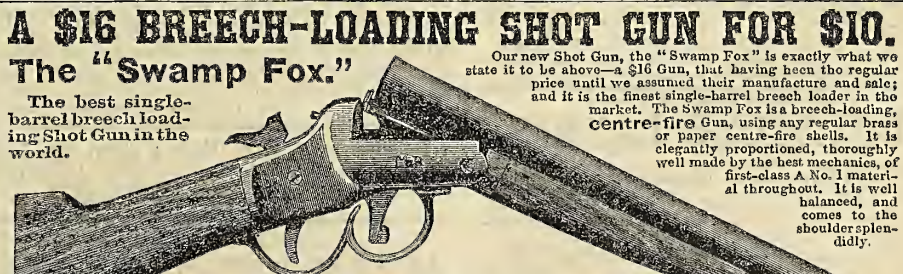

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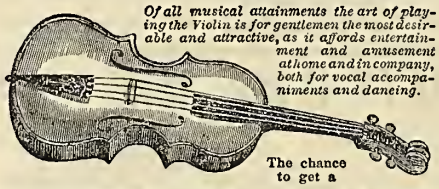

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recently held in New York will result in vast good to the dairy interests of America. It demonstrated that this country could produce Butter and Cheese for all the World, and that this industry was destined to exceed any other in agriculture.

## Ashton's Factory-Filled Salt.
occupied a place in the Fair commensurate with its importance. In use over fifty years, it is acknowledged by all first-class makers of Butter and Cheese to be the only kind fit to use. Darlington, of Chester County, Pa., who gets 85 cents per pound for his Butter; Crozier, of Long Island, who realizes nearly the same, and the leading dairymen, creamery proprietors and manufacturers of cheese use it exclusively. All the wholesale dealers in New York and other markets of America recommend its exclusive use. At the International Dairy Fair, the sweepstakes Premium **"For the Best Butter of any Kind, Made at any Time or Place,"** was salted with **ASHTON'S SALT,** and all the best prizes were taken by those who had used it in their Butter or Cheese. Ashton's Salt improves the quality of both Cheese and Butter from one to five cents per pound, while from the larger quantity contained in its sacks, it is the cheapest. If you cannot get Ashton's Salt of your dealer, write to FRANCIS D. MOULTON & CO., Sole Agents, 105 Water street, New York.
**N. B.—Ashton's Factory-Filled Salt is imported in one-bushel bags, as well as in four-bushel sacks, for the convenience of families and small dairies.**

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**CCC** 50 Elegant Cards, Hash, Oriental, &c., and name, or 25 Acquaintance Cards, no 2 alike, 10c. IMPERIAL CARD CO., Fair Haven, Conn.

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**60** **Chromo, Perfumed, Snowflake, and Lace Cards,** Name on all, 10 cts. Game Authors', 15 cts. LYMAN & CO., Clintonville, Conn.

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**60** **Chromo and Perfumed Cards,** [no 3 alike,] Name in Gold and Jet, 10c. CLINTON BROS., Clintonville, Ct.

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**50** *Flowered, Diamond, Basket, Roseate, etc.* **CARDS** no 2 alike **ONLY 10c.** *Name neatly printed on all.* Star Printing Co., Northford, Ct

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**50** *New Style* **CARDS,** *Gold Border, Chromo, Motto,* etc., name in Gold, 10c. STAR CARD CO., Clintonville, Ct.

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**25** of the **Prettiest Cards** you ever saw, or 18 **Elegant** New Style Chromo Cards, with name 10 cts., post-paid. GEO. I REED & CO., Nassau, N. Y.

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**50** **Richly** perfumed Cards, no 2 alike, name in jet, 10c.; with Case, 13c. 25 Murphy Temperance Cards, 20c. F. W. AUSTIN & CO., North Haven, Ct.

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**40** **MOTTO, CHROMO, ETC., CARDS,** name and fancy case, 10 cts. E. D. GILBERT, P. M., Higganum, Conn.

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**CARDS.**—10 Lily of the Valley, 10 Scrolls, 10 Engraved, 10 Transparent, 1 Model Love Letter, 1 Card Case. Name on all, 15c. WARD & CO., Northford, Conn.

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**25** **ELEGANT ROUND-CORNERED GILT** Edged Cards, 15c.; in case, 20c. Name *neatly* printed in script. EATON BROS., Northford, Conn.

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**18** **LOVELY ALL CHROMO CARDS,** new styles, with name, post-paid, 10c. J. B. HUSTED, Nassau, N. Y.

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PERFUMED CARDS 31 styles; 50 with name, 10 cents, in case, 12 cents; 25 Gold and Silver Borders, 12 cents. NOVELTY CARD CO., Wallingford, Conn.

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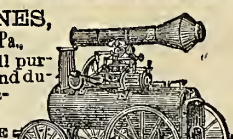

Fig. 1.

Vertical Engines, with or without wheels, very convenient, economical and complete in every detail, best and cheapest Vertical in the world. Fig. 1 is engine in use. Fig. 2 ready for road.

Boiler of cylinder larger than other makers.

Fig. 2.

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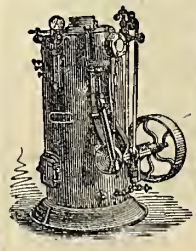

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| 3 | Horse-Power... | $242.00 |
| 4½ | " " ... | 283.50 |
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**Springfield, Ohio,**
or 109 Liberty St., New York City.

## Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, from our record kept daily during the year, show at a glance the transactions *for the month ending Dec. 13th*, 1878, and for the corresponding period last year:

1. TRANSACTIONS AT THE NEW YORK MARKETS.

| Receipts. | Flour. | Wheat. | Corn. | Rye. | Barley. | Oats. |
|---|---|---|---|---|---|---|
| 26 d's *this* m'th | 475,550 | 4,236,000 | 2,434,000 | 387,000 | 743,000 | 831,000 |
| 27 d's *last* m'th | 513,000 | 5,821,000 | 3,971,000 | 567,000 | 1,079,000 | 1,217,000 |
| **Sales.** | *Flour.* | *Wheat.* | *Corn.* | *Rye.* | *Barley.* | *Oats.* |
| 26 d's *this* m'th | 504,000 | 5,936,000 | 4,094,000 | 411,000 | 609,000 | 1,302,000 |
| 27 d's *last* m'th | 521,000 | 6,413,000 | 4,812,000 | 531,000 | 826,000 | 1,473,000 |

2. *Comparison with same period at this time last year.*

| Receipts. | Flour. | Wheat. | Corn. | Rye. | Barley. | Oats. |
|---|---|---|---|---|---|---|
| 26 days 1878 | 475,550 | 4,236,000 | 2,434,000 | 387,000 | 743,000 | 831,000 |
| 25 days 1877 | 473,000 | 4,116,000 | 3,491,000 | 383,000 | 1,312,000 | 1,407,000 |
| **Sales.** | *Flour.* | *Wheat.* | *Corn.* | *Rye.* | *Barley.* | *Oats.* |
| 26 days 1878 | 504,000 | 5,936,000 | 4,094,000 | 411,000 | 609,000 | 1,302,000 |
| 25 days 1877 | 491,000 | 5,129,000 | 4,154,000 | 431,000 | 1,227,000 | 1,286,000 |

3. *Exports from New York, Jan. 1, to Dec. 10.*

| | Flour. bbls. | Wheat. bush. | Corn. bush. | Rye. bush. | Barley. bush. | Oats. bush. | Peas. bush. |
|---|---|---|---|---|---|---|---|
| '78 | 2,433,166 | 52,166,952 | 25,844,569 | 3,970,465 | 1,518,667 | 3,645,001 | 428,937 |
| '77 | 1,386,875 | 19,833,574 | 25,276,390 | 1,992,620 | 1,936,956 | 246,355 | 454,056 |
| '76 | 1,823,050 | 23,606,295 | 16,339,741 | 1,281,929 | 88,097 | 619,118 | 689,246 |
| '75 | 1,789,299 | 25,054,035 | 12,495,349 | 152,925 | 1,505 | 133,754 | 415,019 |
| '74 | 2,055,423 | 33,700,159 | 18,329,781 | 641,661 | 3,320 | 110,331 | 425,553 |

4. *Stock of grain in store at New York.*

| | Wheat. bush. | Corn. bush. | Rye. bush. | Barley. bush. | Oats. bush. | Malt. bush. |
|---|---|---|---|---|---|---|
| Dec. 9, 1878 | 3,910,457 | 3,520,555 | 602,206 | 965,577 | 1,339,994 | 133,079 |
| Nov. 11, 1878 | 4,539,387 | 4,179,584 | 547,226 | 880,910 | 1,306,069 | 18,057 |
| Sep. 10, 1878 | 1,162,808 | 1,113,458 | 71,886 | 202,774 | 697,668 | 131,841 |
| Aug. 12, '78 | 1,126,813 | 598,736 | 62,647 | 203,224 | 472,366 | 137,003 |
| July 11, '78 | 1,591,132 | 720,784 | 138,852 | 174,000 | 207,769 | 663,075 |
| May 7, 1878 | 748,196 | 263,020 | 75,229 | 207,576 | 570,293 | 258,327 |
| Apr. 15, 1878 | 1,370,081 | 541,648 | 106,375 | 396,861 | 857,273 | 253,424 |
| Jan. 10, 1878 | 2,586,715 | 105,909 | 286,333 | 913,898 | 1,687,985 | 321,474 |
| Nov. 5, 1877 | 984,374 | 2,643,502 | 166,949 | 368,429 | 1,770,759 | 328,388 |
| May 7, 1877 | 761,686 | 468,809 | 193,046 | 174,375 | 347,831 | 291,654 |
| Jan. 8, 1877 | 3,668,010 | 3,077,504 | 341,750 | 905,615 | 1,088,104 | 425,406 |
| Dec. 11, 1876 | 3,110,283 | 3,385,554 | 218,841 | 873,310 | 1,182,322 | 512,041 |
| Jan. 10, 1876 | 5,802,293 | 663,982 | 100,741 | 325,191 | 1,080,300 | 307,438 |

5. *Tide-water Receipts at Albany, from opening of navigation to Dec. 7:*

| | Flour. bbls. | Wheat. bush. | Corn. bush. | Rye. bush. | Barley. bush. | Oats. bush. | Malt. bush. |
|---|---|---|---|---|---|---|---|
| '78 | 18,400 | 26,486,006 | 25,167,800 | 2,103,600 | 3,192,300 | 5,062,500 | 486,800 |
| '77 | 29,100 | 12,743,500 | 23,631,100 | 1,282,700 | 5,530,900 | 4,228,700 | 607,500 |
| '76 | 37,100 | 11,801,100 | 11,386,600 | 762,700 | 3,858,000 | 3,167,900 | 735,600 |
| '75 | 113,600 | 21,335,200 | 8,581,800 | 250,900 | 3,833,600 | 3,108,300 | 659,800 |

CURRENT WHOLESALE PRICES.

| | Nov. 13. | Dec. 18. |
|---|---|---|
| PRICE OF GOLD | 100 1-8 | 101 1-8 |
| FLOUR—Super to Extra State | $3 15 @ 4 25 | $3 15 @ 4 25 |
| " Super to Extra South'n. | 3 25 @ 5 75 | 3 15 @ 5 75 |
| " Extra Western | 3 70 @ 8 50 | 3 70 @ 8 75 |
| " Extra Genesee | 3 85 @ 5 50 | 3 85 @ 5 50 |
| " Superfine Western | 3 15 @ 3 65 | 3 15 @ 3 65 |
| RYE FLOUR, Superfine | 2 90 @ 3 45 | 2 85 @ 3 30 |
| CORN-MEAL | 2 20 @ 2 85 | 2 15 @ 2 85 |
| BUCKWHEAT FLOUR, ℔ 100 lbs | 1 70 @ 2 00 | 1 60 @ 1 90 |
| BUCKWHEAT, per bush | — @ 50 | 47 @ — |
| WHEAT—All kinds of White. | 98 @ 1 12 | 1 00 @ 1 11 |
| All kinds of Red and Amber. | 75 @ 1 08 | 78 @ 1 08 |
| CORN—Yellow | 47 @ 63 | 45 @ 63 |
| " Mixed | 42 @ 47 | 42 @ 47 |
| " White | 50 @ 63 | 45 @ 63 |
| OATS | 28 @ 40 | 28½@ 37½ |
| RYE | 58 @ 63 | 55 @ 62 |
| BARLEY | 75 @ 1 25 | 75 @ 1 25 |
| HAY—Bale, ℔ 100 lbs | 30 @ 75 | 25 @ 75 |
| STRAW, ℔ 100 lbs | 20 @ 45 | 25 @ 45 |
| COTTON—Middlings, ℔ lb | 9⅞@ 9⅞ | 8⅞@ 9⅛ |
| HOPS—Crop of 1878, ℔ lb | 8 @ 15 | 5 @ 15 |
| " " 1877, ℔ lb | 5 @ 8 | 4 @ 6 |
| " olds, ℔ lb | 1 @ 4 | 1 @ 8 |
| FEATHERS—Live Geese, ℔ lb | 35 @ 55 | 35 @ 50 |
| SEED—Clover, West. & St. ℔ lb | 6¾@ 7¼ | 6¼@ 7¾ |
| " Timothy, ℔ bushel | 1 20 @ 1 25 | 1 20 @ 1 30 |
| " Flax, ℔ bushel | 1 37 @ 1 40 | 1 40 @ — |
| TOBACCO, Kentucky, &c., ℔ lb. | 2½@ 14 | 2½@ 11½ |
| " Seed Leaf, ℔ lb | 3½@ 50 | 8½@ 45 |
| WOOL—Domestic Fleece, ℔ lb | 20 @ 43 | 20 @ 42½ |
| " Domestic, pulled, ℔ lb | 20 @ 38 | 20 @ 38 |
| " California | 12 @ 27 | 12 @ 27 |
| TALLOW, ℔ lb | 6½@ 6⅝ | 6⅝@ 6¾ |
| OIL-CAKE—℔ ton | 27 50 @28 00 | 28 00 @ — |
| PORK—Mess, ℔ barrel | 7 45 @ 7 90 | 7 30 @ 7 60 |
| " Extra Prime, ℔ barrel | — @ — | — @ — |
| BEEF—Extra mess | 10 50 @11 00 | 10 50 @11 50 |
| LARD, in tres. & bbls, ℔ 100 lb | 6 15 @ 6 60 | 5 80 @ 6 37½ |
| BUTTER—State, ℔ lb | 12 @ 28 | 12 @ 27 |
| " Western, poor to f'cy, lb. | 7 @ 27 | 7 @ 27 |
| CHEESE | 3½@ 9¼ | 3 @ 8 |
| EGGS—Fresh, ℔ dozen | 24 @ 28 | 23 @ 26 |
| POULTRY—Fowls, ℔ lb | 8 @ 14 | 7 @ 14 |
| " Chickens, Penn., ℔ lb | 12 @ 14 | 11 @ 14 |
| Turkeys—℔ lb | 8 @ 13 | 7 @ 12 |
| Geese, ℔ pair | 1 00 @ 1 50 | 1 12 @ 1 50 |
| Ducks, ℔ pair | 45 @ 90 | 40 @ 90 |
| " ℔ lb | — @ — | 9 @ 13 |
| DUCKS, Wild, ℔ pair | 20 @ 1 50 | 40 @ 2 25 |
| CHESTNUTS—℔ bush | 3 50 @ 4 50 | 3 25 @ 4 00 |
| HICKORY NUTS—℔ bush | 2 00 @ 2 50 | 2 25 @ 2 50 |
| APPLES, ℔ barrel | 62 @ 2 00 | 1 00 @ 2 00 |
| GRAPES, ℔ lb | 6 @ 10 | 6 @ 20 |
| QUINCES, @ bbl | 2 00 @10 00 | — @ — |
| CRANBERRIES—℔ bbl | 5 00 @ 7 00 | 5 00 @ 9 00 |
| BEANS—℔ bushel | 1 50 @ 2 10 | 1 50 @ 2 20 |
| PEAS—Canada, in bond, ℔ bu | 70 @ 72 | 73 @ 75 |
| POTATOES, ℔ bbl | 1 75 @ 3 00 | 1 75 @ 3 00 |
| " Sweet, ℔ bbl | 1 00 @ 1 50 | 1 25 @ 2 25 |
| TURNIPS ℔ bbl | 75 @ — | 75 @ 87½ |
| BROOM-CORN | 4 @ 6 | 4 @ 5½ |
| CABBAGES—℔ 100 | 2 00 @ 5 00 | 2 50 @ 5 00 |
| ONIONS—℔ bbl | 1 00 @ 1 50 | 1 50 @ 2 25 |
| CELERY, per dozen | 75 @ 87 | 75 @ 1 00 |

Gold closes at 100⅛, as against 103 on Dec. 12, 1877. Resumption of specie payments is fixed by law for Jan. 1, 1879, and the Treasury Department and the Banks are shaping their financial policy accordingly. Little, if any, disturbance of business interests is apprehended from resumption measures. On the 7th inst., the State Canals were officially closed, bringing to an end an unusually active and prosperous season of canal navigation....Cable advices have been of a depressing tenor, as a rule, and have tended to check operations in Produce, and to weaken values. Less export inquiry has been reported for the leading articles, and the home trade call has been on a moderate scale. Inland and ocean freights have declined sharply and left off heavily....Flour has been offered more freely, and has been more or less variable in price, closing weak, on a comparatively tame movement, chiefly for home use. Rye Flour declined and closed in favor of buyers, the available supplies having been considerably in excess of the requirements of purchasers. Corn Meal has been sparingly dealt in, yet has otherwise shown little change. Wheat has been less active, and quoted lower, though on the later transactions exhibiting a stronger range on winter grades, which closed up in better request, in good part for shipment to the Continent, whence the demand is mostly for better qualities of White and Red. Corn has been quoted cheaper on a less important business. Rye has been less sought after, closing heavily. A restricted movement has been reported in Barley, which, however, has been held more confidently toward the close. Canada Peas have been in some demand, and have been advanced slightly in price. Oats have been less freely purchased and quoted lower, White closing more steadily, while Mixed left off depressed and irregular....A further sharp decline occurred in Cotton, which has been less inquired for....Provisions have further receded in price, closing weak, and without notable animation....Wool has been moderately sought after, and has been quoted generally about steady.... Tobacco has been in fair demand within our previous range....Seeds have been in rather better request at the ruling figures....Hops have been quoted lower on free offerings, leading to a more liberal business, largely for export, mostly for London ....Hay and Straw have been comparatively quiet.

## New York Live-Stock Markets.

RECEIPTS.

| WEEK ENDING | Beeves. | Cows. | Calves. | Sheep. | Swine. |
|---|---|---|---|---|---|
| Nov. 18 | 9,589 | 200 | 2,096 | 24,682 | 45,975 |
| Nov. 25 | 9,675 | 154 | 2,162 | 16,590 | 54,582 |
| Dec. 2 | 8,171 | 180 | 1,670 | 26,270 | 53,096 |
| Dec. 9 | 10,698 | 123 | 1,851 | 25,779 | 57,960 |
| *Total for 4 Weeks* | 38,133 | 657 | 6,779 | 93,301 | 211,613 |
| do. *for prev. 4 Weeks* | 44,831 | 509 | 11,982 | 134,119 | 197,857 |

| | Beeves. | Cows. | Calves. | Sheep. | Swine. |
|---|---|---|---|---|---|
| *Average per Week* | 9,533 | 164 | 1,695 | 23,325 | 52,904 |
| do. do. *last Month* | 11,207 | 127 | 2,995 | 33,529 | 49,461 |
| do. do. *prev's Month* | 12,104 | 71 | 3,611 | 32,622 | 31,088 |

The prices for the past four weeks were as follows:

| WEEK ENDING | Range. | Larger Sales. | Aver. |
|---|---|---|---|
| Nov. 18 | 6 @10 c. | 7¼@ 8½c. | 7⅞c. |
| Nov. 25 | 6¾@10 c. | 7⅞@ 8¾c. | 8 c. |
| Dec. 2 | 6½@11½c. | 8 @ 9¼c. | 8⅞c. |
| Dec. 9 | 6⅞@10⅜c. | 7⅞@ 9 c. | 8¼c. |

**Beeves.**—The range of prices show the condition of business for the past month. At the close, the market was weak and prices fell off considerably. Extra cattle brought 10½@10¾ for a dressed weight of 57 lbs. to the 100; native steers of 56 to 57 lbs., sold for 9½ to 10c. per lb.; Colorado steers brought 7¾@8c. per 55 lbs. to the 100, and dry cows and bulls 2½@4½c. per lb. live weight ....**Cows** have been without change, selling according to quality, for $28.50 to $70 per head... **Calves** have sold steadily on a dull market, with slightly lower prices; grass calves brought 2¾@3¼c. per lb., and prime milk calves 5@7c. per lb. live weight....**Sheep** have declined on a quiet market, closing at 4@5¼c. per lb. for common to choice; dressed mutton sold at 6@8c. per lb...**Swine** have sold at 3@3¼c. per lb. for live, and 3¾@4c. per lb. for dressed; the market closes dull and weak.

## What Good Seed and Cultivation Will Do.

### 128 bushels of Wheat to the Acre.

The low average yield of wheat in this country is due to various causes. Lack of proper cultivation, soils rendered sterile by long cropping, poor seed, etc. The work of careful experimenters and progressive farmers, is teaching us that attention to these details marks the path to success in wheat growing. We have recorded many accounts of unusual yields, due to drill cultivation, and superior seed, but the reports of the competitors for the wheat premiums offered by Messrs. B. K. Bliss & Sons, excel anything else we have seen in this line. The premiums, as announced in the *American Agriculturist*, last Spring, amounted to $250, and were for the 1st, 2nd, 3rd, and 4th largest quantities, grown from one pound of the "Champlain," and "Defiance," respectively, and for the best 20 heads of each variety. These were Spring wheats, originated by hybridization, by Mr. Pringle of Vermont, who had previously been very successful in bringing out new varieties of potatoes. The prize winners were: For "*Champlain*," 1st premium, A. J. Scoggins, Tulare Co., Cal., 791 lbs., from 1 lb. of seed.—2nd, John Brakefield, Stearns Co., Minn., 484 lbs.—3rd, A. Monquin, Davis Co., Ill., 405¾ lbs.—4th, Alfred Rose, Yates Co., N. Y., 295 lbs. "*Defiance*."—1st J. Brakefield, Stearns Co., Minn., 528 lbs., from 1 lb. of seed.—2nd, A. Mouqnin, Davis Co., Ill., 465½ lbs.—3d, David Brothers, Denver, Col., 342 lbs.—4th, A. G. Hickerson, Plumas Co., Cal., 316 lbs. Calculated according to the areas of the plots, one of these experimenters got at the rate of 128 *bushels of wheat per acre*, and none of the winners less than 55. One competitor planted his seed in drills 8 inches apart, and two feet between every alternate row. Reckoning only 8 inches between the drills, this competitor states that his plot occupied only $^1/_{64}$ of an acre, and that accordingly his yield was at the rate of 334 *bushels per acre*. These results were of course due to the superior quality of the seed to a considerable degree, but largely, doubtless, to the methods of cultivation adopted. Most of the prize winners planted the seed in drills, 8 to 16 inches apart, placing the kernels 4 to 6 inches apart in the row, and then cultivating the crop as they would a choice cornfield. The ground was also carefully prepared, and the whole treatment the best. The unusual yields are indications of what wheat-growers may expect, when they adopt the methods which these and similar experiments teach are the ones that lead to success. Readers will remember that our publishers have a small amount of these varieties of wheat for distribution. See Premium List.

*containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.*

## Continued from p. 7.

**In justice to the majority of our subscribers, who have been readers for many years, articles and illustrations are seldom repeated, as those who desire information on a particular subject can cheaply obtain one or more of the back numbers containing what is wanted.**

**Back numbers of the "American Agriculturist," containing articles referred to in the "Basket" or elsewhere, can always be supplied and sent post-paid for 15 cts. each, or $1.50 per volume.**

**Our Dairy Interests.—Their Magnitude.**—In the various addresses at the Dairy Fair, these statements were made: The cows of the country and the land they are kept on, are valued at over Thirteen Hundred Million Dollars ($1,300,000,000)!—The annual butter and cheese products, is $50,000,000 greater than the value of the wheat crop. During the 12 years past, we have *exported* over one billion pounds of cheese, or 85,000,000 lbs. a year, or about 271,300 lbs., for every working day.

**Keeping Potatoes.**—The French hotel and restaurant keepers are said to preserve their supplies of potatoes in the following manner: The tubers are first washed, and then, a few at a time, by means of small baskets, are plunged into boiling water, and held there for four seconds; they are then dried and stored. This treatment destroys the vitality of the buds or "eyes," and there is no tendency to sprout, but the potatoes keep sound and of good flavor, until the next crop comes in.

**Indian Corn.**—It does not seem possible for an Englishman to understand the *nomenclature* of maize. A recent "Gardeners' Magazine," speaking of the manufacture of sugar from the "stems" of Indian Corn says: "As a matter of course, the grain must be sacrificed to secure the sugar, for as the cobs swell, the canes become less and less sweet." Swelling of the cobs, indeed!

**Earthworms in Pots.**—A correspondent of the "Revue Horticole," says that watering with a cold strong infusion of Horse-Chestnuts will kill earthworms. We have always thought that Horse-Chestnuts would turn out to be good for something.

**Wire Bed Mattresses** are among the best additions of recent inventions to comfort and rest, and they are quite as important to hard-working people, whether farmers or others, as they are to more leisurely people. We have practically tested different kinds, and are now enjoying one made by the National Wire Mattress Company, of New Britain, Ct. With its strength, durability, and elasticity, we do not see how it can be improved.

**Petunias and Potato Bugs.**—The statement went the rounds of the papers that the Petunia planted among the potato vines, would be eaten by the potato-beetle in preference to the potato, and the insect would be killed. The Petunia belongs to the same botanical family with the potato, and the statement looked very improbable. Our correspondent, "H. N. S.," South Sudbury, Mass., tried the matter, and, finding that the insects would not take to the Petunia from choice, confined them to that, and when forced to do so, they fed upon the Petunia leaves, and the diet did not appear to disagree with, much less prove poisonous to them.

**Northern Michigan.**—A correspondent writes that the crops in Northern Michigan were excellent, and that the farmers had good fall weather for securing them. Lumbermen expect a favorable winter for their work, and say that if it should prove to be, there will be more logs "barked" this season than ever before.

**Poultry Exhibitions** should be conducted impartially, though they often are not. If they could be, there would be greater interest in poultry raising. The real standard of merit is not ownership or breeding, but quality. The judges who can stick to this point, and be untrammeled by prejudice of "strain" are those who will be in the front rank. "No favoritism; the *birds* to win," should be the motto of judges at the poultry exhibitions; then, and not till then, will farmers and amateurs become regular exhibitors. I. K. F.

**Cow-Milkers in New Zealand.**—Mr. John Lamhie, a New Zealand subscriber, sends an account of his experience with cow-milkers: "Some eight years ago I saw an advertisement in an Ayrshire paper, setting forth the merits of the milkers; so I wrote to Mr. John Drummond, of cheese-making celebrity, in Ayrshire, in reference to it. He sent us 2 or 3 sets, and I gave them a very careful and patient trial, extending over two years. The result of my experience is that the milkers (I refer to the "silver tubes") will never prove entirely satisfactory. Although used with the greatest care, the teats of some cows became inflamed and swollen. It varied in effect with the degree of coarseness in the animal. Fine-skinned cows were easily irritated, while coarse and thick-skinned animals were not affected, except by a decreased flow of milk from the continual use of the tubes. The inside of the teat would appear to be of such delicate structure, that no foreign substance, however skillfully formed, can possibly be introduced without producing irritation. I noticed some cases where, after the irritation had subsided, the inside of the teat appeared callous and hard, as if nature was making an effort to accommodate herself to the altered circumstance; this was also accompanied by a less flow of milk. That the milkers are useful in case of an accident to the teat when it would be impossible to squeeze it by hand, I can personally vouch for."

**Wire-Binders to the Rear.**—There has been much complaint from farmers that the straw from harvesters that use wire-binders contains bits of wire that get into the animals' stomachs and causes serious injury. The millers, also, have tabooed the wire-binders, as shown by the following resolutions, adopted by the Minneapolis Miller's Association:

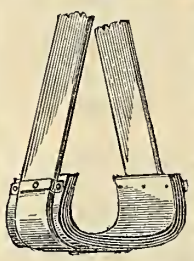
WHEREAS, The committee appointed by this association to examine into and report upon the damage to mill machinery, arising from the use of wire-binders for wheat, having rendered a report recommending the discontinuance of the use of said wire-binders, and said report having been accepted by this association, therefore, be it *Resolved*, That, whenever practicable, a difference of ten cents per bushel, under corresponding grade, be made in the purchase of any wheat containing wire. And be it further *Resolved*, That we most earnestly recommend the discontinuance of the use of wire-binders for binding wheat.

**The Lancaster Butter-Carrier.**—No matter how good butter may be, if it reaches the market in a soft and unpresentable condition, it can not sell for the best price. We several years ago figured one form of butter-box or pail, in which ice was used at each end, but this was more especially intended for those who take their own butter to market. In the Lancaster Butter-Carrier, we have a contrivance, on a similar principle, in which butter may be sent by express. The butter is to be made into pound prints, wrapped in muslin, and each print dropped into a tin cup of the proper shape; these cups fit into a case holding four dozen or any desired number. The peculiarity of the carrier is, that one cup or several may be replaced by water-tight cans containing ice, and the temperature kept low until the butter reaches its destination, when the ice-cans are refilled. This common-sense affair is advertised elsewhere by E. L. Resb.

**Longest Tunnel in the World.**—Eleven years ago, we passed from Southeast France over Mount Cenis, into Italy. The road zig zagged up mountain sides, and through defiles, until we crossed a notch in the summit, 6,773 feet high, where the snow never melts. Ten hours time, and 21 horses used in relays, were required to get our carriage holding six persons, half of them children, over to Suza. Five years ago, we went *through* the mountain in 30 minutes, in a railway carriage, so well lighted and running so smoothly that but for the guide-book we should hardly have known we were under a mountain at all.—Look on the map and find Luzerne in North Central Switzerland, and Lake Maggiore in Northern Italy. Eleven years ago, in passing between these two places, we used three days' time, and more horses than we can remember. The road at the St. Gothard Pass reached an elevation of nearly 7,000 ft., where the snow remains all summer. Now they are building a railroad between these two places, and to get it through they are digging a Tunnel *under* St. Gothard, which is to be 48,936 feet, or over 9 miles long—the longest one in the world. There are other tunnels enough to make nearly 23 miles of tunnel in 108 miles of railroad. The cost of this railroad is to be nearly $60,000,000. Through this highway is to pass the immense traffic between the two great nations of Germany and Italy. In going over from Luzerne in 1867, we met hundreds, probably thousands, of heavy, slow-moving wagons, plodding up the steep road, loaded with freight, passing from Italy to Germany. At least hundreds of them were laden with silkworm cocoons, taking them to Germany to be transformed into silken thread and fabrics; other hundreds of wagons carried casks and barrels of Olive Oil.

**Healthful or Healthy.**—A common mistake is the use of the word healthy for health*ful*. Many kinds of food may be in a very healthy condition and yet not be health*ful* for a sick person, or a well one even. Health*ful* food, health*ful* exercise, health*ful* air may all contribute to put a person in a *healthy* condition. Healthy refers to the condition of a person; health*ful* to the quality in an object, in a food for example, which will help to put or keep a person healthy.

**A Safety Stirrup.**—"H. R.," Springfield, Mo., suggests an improvement on the ordinary form of stirrup, which he thinks would be less liable to catch the foot in case of accident. The foot-rest is of wood or iron, but only extends across the bottom and up the sides of the foot. The strap forms a loop in which the wooden or metallic portion rests, as shown in the engraving. A projection from the bottom may be turned up at the end to prevent the foot from passing through the stirrup.



**Wheat in Northern Minnesota.**—"A. B.," Clay Co., Minn. To grow more than 15 to 20 bushels of wheat per acre without manure, you probably need to prepare the land better, and to cultivate the growing crop. As you only raise spring wheat, begin by plowing the land thoroughly in the fall, then plow again early in spring (if you did not plow last fall, plow twice next spring), and thoroughly pulverize with the harrow. Sow the wheat in drills 12 to 16 inches apart, using three pecks of seed to the acre; then cultivate the growing crop with some such implement as Travis' Wheat-Hoe. Similar practice to this has doubled the crop in a number of cases that have come to our notice. It should be remembered, however, that no amount of cultivation can take the place of fertility, either natural or supplied.

**The American Cotswold Record,** edited by Chas. P. Willard, Chicago, Ill., and published by the American Cotswold Association, of which the Editor is Secretary. This is an exceedingly neat volume, giving over 500 pedigrees, engravings of several noted sheep, and an essay on Cotswold sheep by the Hon. Chas. P. Mattocks, of Maine. This being the first volume, can be regarded as only a beginning, as the number of owners is very small and does not include the names of several well-known breeders of Cotswolds that we shall expect to see in another volume.

**Lucern or Alfalfa in Canada.**—"S.," in Ontario, adds his own experience to what we have already given. He says: "In the spring of 1876, a friend in California, sent me a pound of seed, which I sowed on about $^1/_{10}$th acre, in drills 10 to 12 inches apart. It came up nicely, was kept clean that season and hoed once in the spring of 1877, since which, no cleaning has been needed. In 1877, it was cut twice (a portion three times), both crops being very good. It was manured in fall of 1877, and this year (1878), there have been four good cuttings, one very heavy, and the rest each apparently equal to a a good crop of clover. I can not give weight of crop, as it was all fed green to working-horses, which thrived well upon it, and appeared to like it better than anything else. I had no hope that it would succeed on my land, which is stiff clay with a northern exposure. It has, so far, stood the winter well. My little bit of experience is decidedly favorable, and if I were farming, I would try it more extensively. It is quite possible that, as suggested by Mr. Chapman, one, and the chief cause of success, is the use of Californian seed, as European seed has been tried in this neighborhood without any encouraging results."

**A Wisconsin Cheese.**—Cheese-making, to judge by the display made at the recent Dairy Fair by Wisconsin, promises to become a leading industry in that State. On the last evening of the Fair we had the company of a large exporter of Cheese, who, having no interest in the samples examined, gave an impartial opinion as an expert, as we passed around, freely using the tryer. He returned several times to a lot that had no mark to indicate where it was from, and at last remarked: "Whatever the judges may decide, that, in my opinion, is the best cheese here." We afterwards found that the cheese was made in June, 1878, by Clark & Reynolds, Oakland, Jefferson Co., Wis., and was exhibited by Blackwell & Co., New York, to show the keeping qualities of their cold warehouses, the cheese having been stored there since July 27.

**A Good Corn-Sheller** is "Adams' Self-Feeding Power Corn-Sheller," advertised by the Sandwich Manufacturing Company. This was invented 20 years ago, hence is one of the oldest. It is built to do a great amount of work; is fitted with elevator and cob-stacker, and requires 2 to 6 horses to drive it. Its operation is much the same as that of hand-shelling, so that the corn is not broken or crushed. This company also make shellers for mill and small farmers use, also the "Young Samson" horse-power, a compact and convenient apparatus.

**Florists, Look Out!**—There is a chap calling himself Beauhien, who is going among florists and taking orders for "Double Yellow Petunias," "Yellow Verbenas," and other remarkable novelties. He claims that his stock is being cared for by some florists in South Framingham, Mass., who are much annoyed at the use of their name by this scamp. The fellow takes orders for half cash down and half on the delivery of the plants—which, of course, never happens. It is a wonder to us that he can find any florists to believe his statements.

**Cure for Roup.**—"I. L. R.," N. Y., recommends pine tar applied externally and a few drops in the throat as a remedy for roup.

**Early Fruiting Peaches.**—J. O. Nixon, Harrison Co., Miss., wrote that on July 12th he ate a peach from a tree which fruited when but a year old. The seeds were sown in the fall of 1876, the plants came up in the spring of '77, and when 4 to 6 inches high, about 70 young trees were transplanted to his nursery. Last spring many of these trees bloomed and set fruit, all of which, save two peaches to a tree, were picked off. He had still eight trees with fruit that promised to ripen.

**A Good Knife for 50 Cents** is advertised by Maher & Grosh, Toledo, O. We have whittled with one of these knives, and find it to be a very good thing. A poorer knife than this has often nestled in our pocket-cut our fingers, skinned musk-rats, cored apples, and been swapped for marbles and fish-lines, when the writer was a boy. Those who send 50 cents for this knife will more than likely get their money's worth.

**Patent Machine Rolled Horse-Shoe.**—This shoe, patented by John D. Billings, is made from a bar of steel so rolled as to form two pieces at right angles to one another; when this is bent to form a shoe, there is a continuous calk below, and a continuous edge above the web or platform upon which the foot rests. The shoes are very easily fitted; it is claimed that they are easier to the foot than the old form of shoe, and that they give a more uniform bearing. The shoes are highly commended by those who have tried them.

**New and Good Music** can be had very cheaply by subscribing to "The Portfolio," a monthly journal published in Boston, and which has long been advertised in our columns. The December number gives eight selections, vocal and instrumental, besides all the current news and gossip in the musical and other arts.

## The American Agriculturist Clubbed with Other Journals.

In response to numerous requests from our subscribers, relative to obtaining the *American Agriculturist* in connection with other publications, we have made arrangements with a few of the leading Magazines, which will be forwarded in combination with our Journal as follows: [Postage additional when sent to foreign subscribers.]

| *American Agriculturist with* | *Regular price for both.* | *The 2 supplied, post-paid, by us for* |
|---|---|---|
| Scribner's Monthly ($4.00) | $5.50 | $4.75 |
| Scribner's St. Nicholas ($3.00) | 4.50 | 3.90 |
| Demorest's Monthly ($3.00) | 4.50 | 3.90 |
| Harper's Monthly ($4.00) | 5.50 | 4.75 |
| Harper's Weekly ($4.00) | 5.50 | 4.75 |
| Harper's Bazar ($4.00) | 5.50 | 4.75 |
| Appleton's Journal ($3.00) | 4.50 | 3.90 |
| Popular Science Monthly ($5.00) | 6.50 | 5.50 |
| Atlantic Monthly ($4.00) | 5.50 | 4.75 |

On receipt of subscriptions as above, we deliver the names and pay to the offices of publication of the magazines ordered, and should there ever be occasion for complaints of non-receipt of such magazines, these should be made direct to their respective Publishers, and not to us.

## For All Our Readers.

"THE

# Farmer's Pride."

Fine Pictures add greatly to the attractiveness and cheerfulness of every home, however lowly it may be. **More than 250,000 excellent Chromos,** almost equal to Oil Paintings, such as the "Strawberry Girl," "Mischief Brewing," etc., now adorn the dwellings of the readers of the *American Agriculturist*, to whom they were sent exclusively. These are vastly superior to the cheap, dauby pictures subsequently scattered through the country, and which led us to cease distributing Chromos altogether.

We are happy to announce that we can now supply all the *bona-fide* subscribers of the *American Agriculturist* for 1879 with a *Superb Steel Plate, Line Engraving*, entitled "THE FARMER'S PRIDE," painted by the eminent Landscape Painter, JEROME THOMPSON, and Engraved on Steel by MARSHALL, whose great portraits of Washington, Lincoln, and others, have achieved for him A WORLD WIDE REPUTATION.

The eminent French artist, Gustave Doré, styles him "the Master of Art in America," and European critics have united in pronouncing his portrait of Mr. Lincoln the **finest specimen of lineal art produced in this century.** Mr. Marshall regards this last work, "The Farmer's Pride," **equal to any of his previous efforts,** and it will unquestionably be so regarded by judges. The cost for engraving a *steel* plate ranges from One Hundred Dollars upward, according to the artistic execution, fineness, and size. Mr. Marshall receives

**Three Thousand Dollars**

for engraving *this* picture, which of itself indicates the excellence and value of the work.

The usual price of steel-plate line engravings of the *size* and *character* of "The Farmer's Pride," **is Ten Dollars, but**

To all *bona-fide* subscribers of the *American Agriculturist* for 1879, we **will supply a splendid Copy of the Farmer's Pride, at our office, together with the Paper, one year post-paid, for $1.63,** or $1.70 when the picture is forwarded by mail, post-paid, securely rolled and protected in a mailing-tube, free of any extra charge.

That is to say, we will send the *American Agriculturist* for 1879 to *bona-fide* subscribers, together with Marshall's elegant Steel Plate, Line Engraving, "The Farmer's Pride" (price $5.00), for $1.70, all postage prepaid.

**OR,**

When the engraving is delivered at our office, 245 Broadway, we will furnish the paper, postage for the year prepaid, and the engraving for $1.63. We make this

**EXTRAORDINARY OFFER,**

because of our desire to place this beautiful picture in the homes of all our subscribers, and at the same time to increase the number of these subscribers for 1879 to a round

**TWO HUNDRED THOUSAND.**

Though the *American Agriculturist* at the reduced price ($1.50 per annum), is cheaper than any similar journal in the world, and richly worth treble the price of the subscription, we cheerfully supply this magnificent engraving **at a great expense to ourselves,** believing that we shall be recompensed for so doing in the satisfaction afforded, and in the increased interest and efforts for the paper, of those subscribers who share in the distribution.

**"THE FARMER'S PRIDE"**

is executed in the **highest style of art on fine plate-paper,** *Twenty-Two* Inches by *Twenty-Eight* Inches. Some idea of the estimation in which the artist and the picture are held, may be had from the fact that thirty artist proofs of this engraving, with the signature of the Artist, have been subscribed for at **Twenty-five Dollars each.**

RECAPITULATION.

The *American Agriculturist* for 1879 postage prepaid, (14c. extra in New York City). **$1.50**

"The FARMER'S PRIDE" to other than Subscribers (postage prepaid)..... **$5.00**

The *American Agriculturist* and "THE FARMER'S PRIDE" to one address, (postage prepaid on both)..... **$1.70**

The two, when the picture is delivered at our office, 245 Broadway,..... **$1.63**

No person other than a Subscriber can procure this picture at less than $5.00. It is now on exhibition at the reception rooms of the *American Agriculturist*, 245 Broadway. The Engravings will be issued as rapidly as possible, and subscribers will be supplied in the order of their application.

### The Steel-Plate to Subscribers in Clubs.

To accommodate our subscribers who send in their names in clubs, at club rates, we subjoin the following offers:

*Four* Subscribers for 1879, and *Four* Engravings, all *post-paid*, for..... $5.80

*Six* Subscribers for 1879, and *Six* Engravings, all *post-paid*, for..... 8.20

*Ten* Subscribers for 1879, and *Ten* Engravings, all *post-paid*, for..... 12.00

To Clubs of *Ten* Subscribers, post-paid, and *Ten* Engravings taken at the Office, or forwarded by Express in one package, expressage unpaid..... $11.30

☞ Clubs *above Ten* at the same proportionate rates.

## The Steel-Plate Engraving for PREMIUM CLUBS.

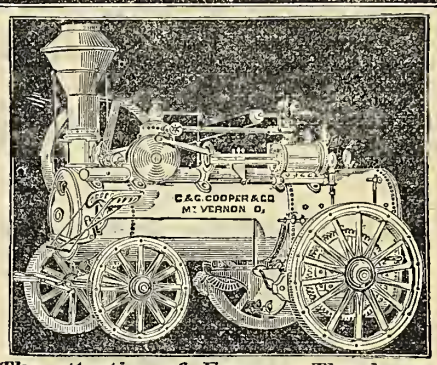
Owing to the necessarily large expense of furnishing the Steel-Plate, it was at first intended to limit its offer to subscribers paying the full price of $1.50 a year, and a small addition, and where no other premiums were given. But we have finally decided to place all subscribers, as nearly as possible, upon equal footing, and we therefore make the following offers to all who are collecting lists of subscribers for Premiums:

Subscribers in Premium Clubs for 1879, on the terms in the table on the last page of this paper, and in the General Illustrated Premium List, published in November, can *each* of them have the Steel-Plate Engraving, by adding only 20 cents for each name, to cover cost of packing, postage, etc., on the Engraving; Or only 13 cents each, when the Engravings are to be sent by Express, *unpaid*, in a single parcel, to one individual.

**A NEW PREMIUM—And a Pocket Revolver, Cheap.**—So many write us for good, low-priced revolvers, that we have arranged to supply those who want them, thus: 1st—A first-rate, steel-barrel and lock, *nickel-plated*, 7-shooter **Revolver,** Calibre 22-100. Made at the celebrated Remington Arms Works, weight 7 ounces. It is as good as any made for anything like the money, and good enough for anybody who wants such an implement. We have fired one 100 times, and found it work perfectly. It will be sent free to any part of the United States, post-paid, by mail, to any one sending only 5 subscribers to the *American Agriculturist*, at $1.50 a year, or 10 subscribers at the 4-club rate of $1.25 a year. [Or it will be forwarded free by mail, on receipt of $2.50. It is as good for use as any $5 or $10 revolver of like calibre.] **2d.**—A larger 5-shooter Revolver, nickel-plated, calibre 32-100, weight 11 ounces will be presented for 7 subscribers, at $1.50 each, or 12 at $1.25 each, delivered free, as above. [Or it will be forwarded free, as above, on receipt of $4.]

## A Chance for Making Money.

During the next three months thousands of farmers and others in every part of the country will have more or less leisure time, which they can profitably employ in procuring subscriptions to the *American Agriculturist*. We are confident that almost everybody who sees the splendid Steel-Plate Engraving given to subscribers on payment of packing, postage, etc., will subscribe to the paper, in order to secure it. But the paper itself is worth five times more than the subscription price. The cost of the paper hitherto has been $1.60 for single subscriptions. Now for $1.70 both the Picture and the paper for 1879 are sent post-free. With the picture in one hand, and copies of the paper in the other, canvassers ought to be able to *daily* obtain a number of subscribers among their friends and neighbors. For any further particulars desired, address Orange Judd Co., 245 Broadway, N. Y.


**The attention of Farmers, Threshermen, and responsible Live Agents, and Agricultural Implement Dealers in all parts of the Country is invited to our**

**Traction or Self-Propelling**

**FARM ENGINES.**

By a simple but reliable attachment made to our Common Farm Engines, we are able to offer a Traction, or Self-propelling Farm Engine, which not only propels itself, but hauls a Water Tank and Separator, or loaded Wagon, over any road, up hill, or down, with the aid of one pair of horses.

These Engines have been thoroughly tested three seasons. Three hundred of them are now in use, and they have not only proved a complete success, but have given such excellent satisfaction that, where introduced, it is with difficulty any other engine can be sold. They cost but little more than the common Farm Engine, and enable the threshermen to operate with from two to four less teams, and move much faster than with horses. They are simple in construction, easily handled, durable, and their advantages over the common Farm Engine are so apparent, *we are confident* they are destined to take the place of other Engines used for threshing, or for any use where the engine and machinery employed has to be frequently moved. Circulars containing cuts, description, prices, and testimonial letters from our customers, furnished free to all applicants. Agents and Dealers will readily appreciate the advantages this Engine offers them. **Agents wanted** in every County in all the States and Territories.

For agencies or circulars apply to

**C. & G. COOPER & CO., Mt. Vernon, Ohio.**

Established in 1840.

**Eureka Safety Power.**

| *h.p.* | *cyl.* | *ht.* | *space.* | *wt.* | *price.* |
|---|---|---|---|---|---|
| 2 | 3½x4 | 48 in | 40x25 | 900 | $ 150 |
| 4 | 4x6 | 56 | 46x30 | 1600 | 250 |
| 6 | 5x7 | 72 | 72x42 | 2700 | 350 |

*Also* **Spark Arresting Portables,** *and* **Stationary Engines** *for Plantations.* Send for Circulars.

**B. W. PAYNE & SONS,**
**Corning, N. Y.**

Say where you saw this advertisement.

**SKATES.**

In every land where water freezes, the **Barney & Berry** skates are known.

We will *deliver free of charges*, to any address east of the Mississippi River, and at more distant points, for a trifling addition, any pair of these celebrated skates.

**New York Club.**—Sizes 8 to 11½ inches. Prices delivered; Blued, $2.20; Nickled, $3.25.

**All Clamp.**—Sizes 8 to 11½ inches. Price delivered; Blued, $2.90; Nickled, $3.75.

**Genuine Club.**—Sizes 7-12 inches. Price delivered, $3.00; Nickled, $4.00.

**Keyless.**—Patent-lever screw skate; size 8 to 12 inches. Price delivered; Blued, $4.50; Polished and Nickled, $6.30.

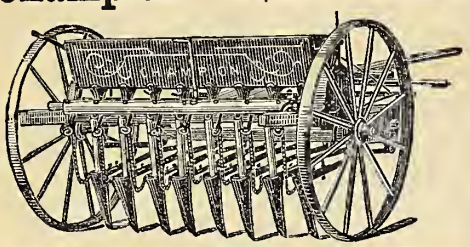
**Ice King.**—Sizes 8 to 12 inches. Price delivered $5.25. Polished and Nickled, $7.00.

**Ice King Rink.**—Sizes 8 to 12 inches. Price delivered, $7.88; Polished and Nickled, $8.75.

**In ordering,** please state size of boot or shoe worn. **Send for complete price-list.** Address,

SPORTSMAN'S DEP'T., ORANGE JUDD CO.,
245 BROADWAY, N. Y.

## Champion of the World!
THE
## Champion Grain Drill.



**With or without Fertilizer, or Grass Seeder Attachments, or Gum Spring Hoes.**

It has a **perfect force feed** Grain Distributor that will sow accurately all kinds of grain without the least injury to the seed.

**UNEQUALED AS A CORN PLANTER.**

Fertilizer attachment **can be relied upon** to sow all kinds of commercial manures whether dry or damp in any desired quantity.

**Draft Light, Construction Simple, but durable.** Liberal discount to cash customers.

Send for descriptive circular.

**JOHNSON, GERE & TRUMAN, Owego, Tioga Co., N. Y.**

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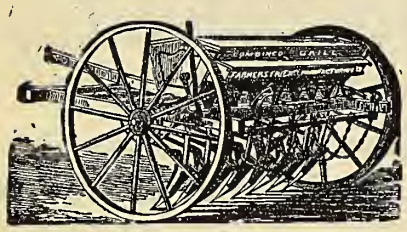
## Awarded the Gold and Silver Medals at the Paris Exposition, 1878.

## FARMERS FRIEND FERTILIZER DRILL.



The highest honors at the World's Fair, at Philadelphia, 1876, and Paris, 1878, crown it the leading Drill of the world.

The **Cone Gearing** and **Double Force Feed** always give it preference on trial with any other.

We make plain, fertilizer or spring hoe Drills of any size, with Force Feed Grass Seeder. Patent Hoe Shifter and Surveyor free.

Greater inducements to purchasers for 1879 than ever.

For circulars, etc., mention this paper, and address

**FARMERS FRIEND M'F'G CO., Dayton, Ohio.**

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## THE REASONS WHY Stock Feeders, Raisers & the Public

WANT THE

**J. I. CASE & CO.'S**

## TREAD & SWEEP POWER MACHINES.

**THEY CUT 10 Tons Hay per Day.**
**THEY GRIND 5 Tons Feed per Day.**
**THEY SAW 18 Cords Maple-wood per Day.**
**ELEVATOR MEN say They are the Best made.**
**WELL DRILLERS need them in a "Dry and Thirsty Land."**
**CORN SHELLERS Run like a Top with them.**
**FOR SHOPS, Mechanics can Saw, Mortice, and Bore.**

**J. I. CASE & CO., Racine, Wis.,** Manufacture **Portable** and **Traction Engines,** and Threshing Machinery with the latest and best Improvements—including **APRON & ECLIPSE SEPARATORS, WOODBURY & PITTS POWER.**

Manufacture and sell annually more Threshing Machines than any Firm in the World!

☞ SEND FOR CATALOGUE.

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## KING OF HARROWS

BRADLEY'S REVERSIBLE
**HARROW.**

Two Harrows in One,
And sold at the price of one.

A Perfect Smoothing Harrow,
Combined with a vertical or straight tooth.

**BRADLEY & CO.,**
Syracuse, N. Y., and Chicago, Ill.

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## Nichols, Shepard & Co.,

**BATTLE CREEK, MICH.,**

Makers of the Original and only Genuine **"Vibrator" Threshers, Mounted Horse Powers, Steam Thresher Engines and Steam Outfits complete.** Illustrated Circulars sent free.

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## HEEBNER'S HORSE POWER
WITH
**PATENT LEVEL TREAD**
AND
## SPEED REGULATOR.

Heebner's Improved Threshing Machines. Send for Illustrated Circulars to

**HEEBNER & SONS, Lansdale, Mont Co., Pa.**

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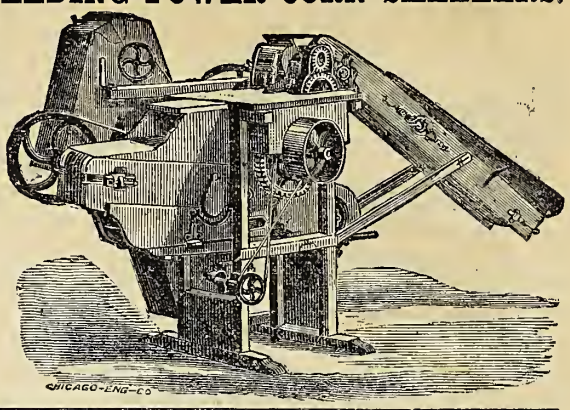
## ADAMS' PATENT SELF-FEEDING POWER CORN SHELLERS.

Strong, reliable, thorough in all parts of their work, (shelling, separating, cleaning, and elevating). Perfect self-feeders, and best machines for mill and warehouse purposes, as well as for farm and plantation. Their superiority attested by twenty years' use in the heavy corn-growing sections, during which time they have received first premium at all State and World's Fairs wherever exhibited.



MADE BY THE

**Sandwich Manufacturing Co.,**

Sandwich, DeKalb Co., Ill.,

Who are also makers of

**The Best Hand Corn Shellers in the Market.**

Send for Circulars.

Live agents wanted in all corn-growing districts East and West. Correspondence solicited.

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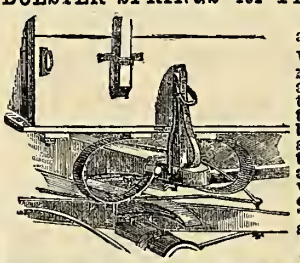
## SOMETHING NEW!
**PULLIAM'S PATENT**
## BOLSTER SPRINGS for FARM WAGONS.



This new and valuable device is suited to wagons of any size—made of the best steel and warranted—are attached by four bolts through the bed—can be put on by any person. They remain on the wagon for all uses, and work equally well whether with empty or loaded wagon. There is no use for a spring seat—they make a comfortable spring wagon out of a farm wagon—and save largely in wear and tear. We Want Agents Everywhere.

**SEMPLE & BIRGE M'F'G CO., St. Louis, Mo.**
S. L. ALLEN & Co., 229 Market St., Phila., General Agents.

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## The Phœnix Drain Tile Machine

Is claimed to be the most simple, strong and durable machine now in the market.

May be driven by either Steam or Horse-power, and will make either Tile or Brick of a quality that is unsurpassed.

Purchasers will note the substantial as well as finished make of this machine; the easy accessibility of its working parts; the means of keeping its plunge-chamber to fit closely, without reference to age or wear; and its general suitability for making Tile at the lowest cost. SEND FOR CIRCULARS.

**CHANDLER & TAYLOR, Indianapolis, Ind.**

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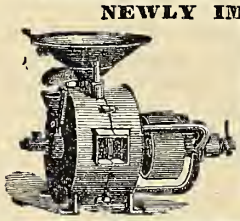
## HARRISON'S MILLS,
**NEWLY IMPROVED.**



New Standard Flouring Mill.
New Standard Corn Mill.

Capacity of 12-inch Mill, 2 to 12 bus. per hour; capacity of Light 20-inch Mill, 6 to 40 bus. per hour.

Wholesome Bread, Fine Flour, High Speed, Quick Work, and Economical Milling Fully Established. For illustrated catalogue, describing the Harrison System, Address Estate of

**EDWARD HARRISON, New Haven, Conn.**
**(William A. Foskett, Administrator.)**

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## AGENTS WANTED EVERYWHERE

FOR THE

**"A. B. C." Right Hand Corn Shellers, Feed Mills, Horse Power Threshers, etc.**

Liberal terms.

**A. B. COHU,**
**197 Water St., N. Y.**

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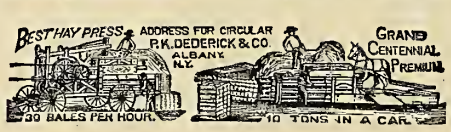


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FARMERS, if you don't find my Patent Adjustable Harrow with your implement dealers, you can order from the factory at wholesale price. It pleases all that get it. Send for circular. S. HUTCHINSON, Griggsville, Pike Co., Ills.

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## CORN SHELLERS
**AND CORN MILLS.**

**Over 20,000 in Use.**

Every machine guaranteed to give satisfaction, or money paid will be promptly refunded.

**Shellers $5, Mills $12.**

Every farmer should have one. Send for Descriptive Circulars.

**Live Agents Wanted.**

LIVINGSTON & CO., Iron Founders, Pittsburgh, Pa.

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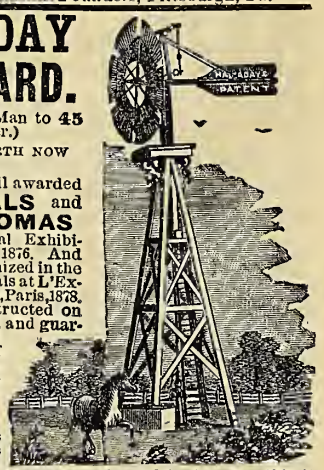
## HALLADAY STANDARD.

(17 sizes—from 1 Man to 45 Horse Power.)

**$3,500,000** WORTH NOW IN USE.



The only wind-mill awarded **TWO MEDALS** and **TWO DIPLOMAS** at the International Exhibition, Philadelphia, 1876. And the only Mill recognized in the distribution of Medals at L'Exposition Universelle, Paris, 1878.

This mill is constructed on scientific principles, and guaranteed to do good work in any kind of wind. It is also guaranteed to be well made of good material; to be perfectly self-regulating; to possess more power; to be more reliable in all kinds of winds, than any other mill made, and further than this, it is **Guaranteed NOT TO BLOW DOWN.**

Send for **CATALOGUE "A"** and Price List.

**U. S. WIND ENGINE & PUMP CO.,**
**BATAVIA, ILL.**

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## STEDMAN & CO.,

MANUFACTURERS OF

**ENGINES, SAW MILLS, SHAFTING, PULLEYS, and HANGERS, HAY and COTTON PRESSES.**

**Power Corn Shellers and Cleaners.**

**AURORA, INDIANA.**

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## Big Giant Corn Mill,
## Every Man His Own Miller.

The only Mill that will grind Corn with Shuck on without extra expense. The only Mill grinding Corn and Cob successfully that will grind Shelled Corn fine enough for family use.

Grinds twice as fast as any other Mill of same size and price.

MANUFACTURED BY

**J. A. FIELD, SON & CO., St. Louis, Mo., U. S. A., & Hamilton, Ont., Canada.**

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## CIDER PRESSES,
## Apple Graters, Elevators, Etc.

**BOOMER & BOSCHERT PRESS CO.,**
**SYRACUSE, N. Y.**

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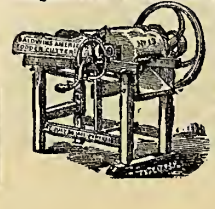
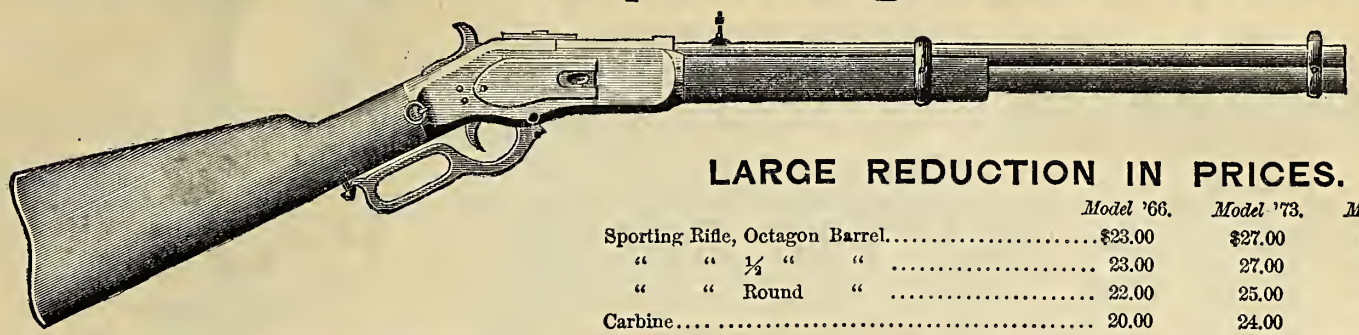
**Improved Baldwin's American Fodder Cutter.**



**The Simplest and Best! Only three Feed Gears!** Cuts all kinds of feed, hay, straw, and corn-stalks with ease and rapidity. Power cutters fitted with our **Improved Safety Fly Wheel,** which secures perfect safety to the operator and machine. See large advertisement in Oct. No. of *Agriculturist.* Send for illustrated circular. C. PIERPONT & CO., Manufacturers, New Haven, Ct.

# Winchester Repeating Fire Arms.



## LARGE REDUCTION IN PRICES.

| | *Model* '66. | *Model* '73. | *Model* '76. |
|---|---|---|---|
| Sporting Rifle, Octagon Barrel | $23.00 | $27.00 | $35.00 |
| " " ½ " " | 23.00 | 27.00 | 35.00 |
| " " Round " | 22.00 | 25.00 | 32.00 |
| Carbine | 20.00 | 24.00 | 27.00 |

☞ **EVERY VARIETY OF METALLIC AMMUNITION AT THE LOWEST MARKET RATES.** ☜

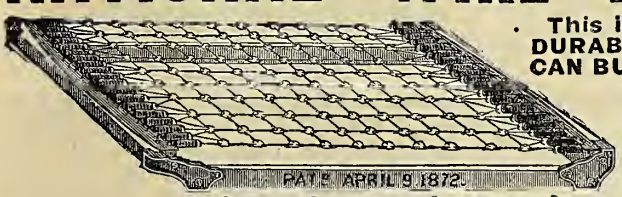
**SEND FOR ILLUSTRATED PAMPHLET.**

## WINCHESTER REPEATING ARMS COMPANY,

**New Haven, Conn., or 245 Broadway, New York.**

Agent for the Pacific Coast, JOHN SKINKER, 115 Pine St., San Francisco, Cal.

# NATIONAL WIRE MATTRESS.




No Sagging or Rolling to the Center on this Bed.

**This is the very BEST and most DURABLE Spring Bed that MONEY CAN BUY. Do not confound it with any Woven Wire Mattress.**

F. Wilson Hard, M. D., Superintendent of the Wesley Water Cure, Delaware Water Gap, Pa., writes unsolicited as follows: "I shall take great pleasnre in hanging your show card in my house, and to recommend the 'Spring Mattress' to all as far as we have influence; for in so doing we consider that we shall be recommending the most *cleanly, comfortable, durable,* and *perfect* spring bed that has ever been made. We have our whole Cure furnished with this bed; have had them in almost constant use for over five years, during which time not one has failed or given out in any particular; have not only given the most perfect satisfaction, bnt have commanded the praise and admiration of all who have slept upon them. We have had Hotel Keepers, and men and women of wealth and from all the various stations and occupations of life, and from nearly every State and Territory in the Union, as well as from all the Canadian Provinces and from England; and without exception all have pronounced it the most satisfactory bed they ever saw."

**Delivered to any R. R. Station in the U. S. or Canadas, free of charge, on receipt of $10.00.**

**Address NATIONAL WIRE MATTRESS CO., New Britain, Conn.**

# TELEPHONES.

**For Business Uses.**

**Special Offer. OUR NEW IMPROVED DOUBLE COILED METALIC TELEPHONE is the finest in the world,** and the only completely satisfactory low priced instrument; with **Spring Call Attachment,** made by **practical machinists** on scientific principles; warranted to work **one mile,** unaffected by changes in the weather. We will send to one address **one sample set** comprising two Telephones, two walnut holders, six copper bound insulators and 200 feet heavy wire, **at 25 per cent. discount** from **regular rates,** which is **$5,** for the **$4.** instruments. This offer is made for a limited time only, simply to introduce our instruments; they will soon be sufficiently well known to sell through the trade, and we shall then be obliged to strictly maintain the retail price. Any person of ordinary intelligence can put them up by following directions sent with each pair. We have sold during the last three months nearly **1000** of these instruments, and have **hundreds of testimonials** from all parts of the country. We **guarantee** all instruments sold, For any Telephone that fails to work, we will **refund the money** and pay all charges. Ask any Commercial Agency, and you will find we are good for all we agree to do. Postage 20c. Name this paper when you write. **Kent, Woodman & Co., 25 Congress St., Boston, Mass.**

## A GRAND OFFER!

A COMPLETE SET OF FINE

**CRYSTAL**

## GLASSWARE,

**OF 48 PIECES, FOR ONLY $5.**

**Unequalled for Holiday Presents.**

Will be carefnlly packed and shipped to any address on receipt of $5. Send money by P. O. order, express, N. Y. check, or registered letter to

GLASS SUPPLY CO.,

Agents wanted. Pittsburg, Pa.

Reference, Tappan, McKillop & Co., Masonic Bank, and others, if desired.

## HYDRO-CARBON LEATHER DRESSING.

Warranted to soften, preserve, black polish and make water proof. For all leather needing any or all of these qnalities. Ask reliable dealers for it or send to

**A. D. STRONG, Manufctr, Ashtabula, O.**

**J. B. HALL, Western Agent,**

**No. 6 Board of Trade Court, Chicago, Ill.**

**OUR NOVELTIES.** — **AGENTS WANTED.**

*Patch Plate,* mends 192¼ in. leaks.....25c.
*Cold Water Pen,* writes without Ink.....10c.
*Coin Pocket Casket,* holds $5 in Silver.....25c.
*Home Stationery Package.* Best out.....25c.
*Erie Cigar Lighters,* for carrying in Pocket....25c.
*Gyroscope Top.* A Sclentific Toy.....25c.

Will send **all** the above by mail on receipt of $1.00. Postage Stamps in Payment of Sums under $1.00. Illustrated 64-Page Catalogue *free.* **City Novelty Co.,** 108 South 8th St., Philadelphia, Pa.

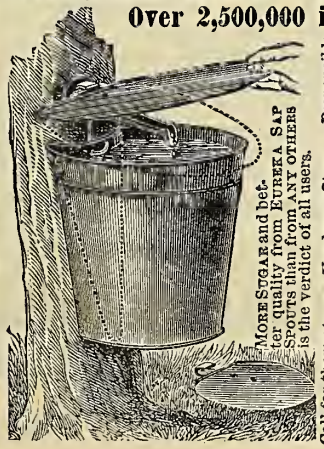
**$4.**

## TELEPHONES

For Business Purposes, ours excel all others in clearness & volume of tone. Illustrated circnlar & testimonials for 3 cts. Address J. R. HOLCOMB, Mallet Creek, Ohio.

## THE SUGAR MAKER'S FRIEND.

**Over 2,500,000 in Use.**



**Post's Patent Bucket & Cover Attached**

More Sugar and better quality from Eureka Sap Spouts than from any others is the verdict of all users. *Responsible Agents Wanted.* Samples, circulars, and terms sent, post-paid, on receipt of 20 cents. Address

**C. C. POST, Patentee, Burlington, Vt.**

## The Only Grand Prize

**for Sewing Machines, at the Exposition Universelle, Paris, 1878, was awarded, over 80 competitors, to Wheeler & Wilson Mfg. Co. New York City, and Bridgeport, Conn.**

## THE HOME KNITTER!

The most complete Family Knitting Machine ever invented. Something entirely new in form, construction and method of operation. Retail price $25. Send for descriptive circulars. Agents wanted everywhere.

**Home Knitter Co., Canton, O.**

## HUNTER'S Perfection Rotary Flour & Meal SIFTER

**MIXER, SCOOP, MEASURE, WEIGHER,** Rice Washer, Egg Beater, Tomato, Wine, Starch, and Fruit Strainer. 11 of the most useful and necessary articles combined and sold for 65 cts. Only Sifter in the world that can be taken in four parts to clean. 75,000 *sold in 180 days.* 200,000 *now in use. Every housekeeper wants it.* Send **65c. for small or $1.00 for large sample,** or stamp for catalogue. **Good Agents wanted,** *male and female.*

**J. M. HUNTER,** Sole Manf'r, 80 Arcade, Cincinnati, O.

## CHALLENGE FEED MILLS.

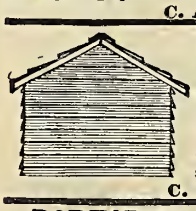
Grinds three times as fast as any other mills. Always successful. Over 500 First Premiums and Medals. Over 15,000 in use. They do not clog or heat; grinds 60 bushels per hour. All successful Iron Feed Mills INFRINGING OUR PATENTS. Beware: Buy none but the best. Remember the Courts have sustained our Patents. Also the best Wind Mills, Corn Shellers, Horse Power Wood Saws, Fanning Mills, and Pumps. Address CHALLENGE MILL CO., Batavia, Ill.

## REGALIN PRESERVING POWDER,

**FOR EGGS, BUTTER, FRESH OR SALTED MEAT, Etc.**

Perfectly tasteless, and preserves the color. Keeps the brine clear, free from scum, and brine and meat from sonring. So salted, it is in taste and flavor much sweeter than ordinary. Price 50 cts. per Box. Sent by mail to any address, postage prepaid. Agents wanted.

**C. AM ENDE, Hoboken, N. J.**



## Building Felt.

This water-proof material, resembling fine leather, is for outside work (*no tar substances used*) and inside, instead of plaster. Felt carpetings, etc. Send for circular and samples.

**C. J. FAY, Camden, N. J.**

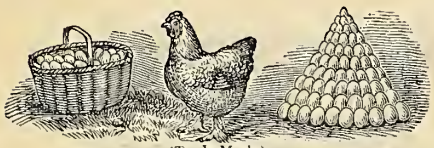
## PORTABLE & FARM ENGINES.

*USING PATENT ANGULAR DRIVING BELT.*

**TAYLOR MANUFACTURING CO.,**

Westminster, Md., U. S. A.; or U. S. Section Agricultural Department, Paris Exposition, France.

# Imperial Egg Food.



(Trade Mark.)
Patented February 23, 1875.

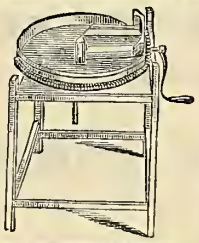
**Will make your Hens lay. Permanently** benefits **laying Hens, Moulting Fowls, and Young Stock.** It makes the Poultry Yard the **best paying part of the farm.** Packages sent prepaid for 50c. and $1.00. Twenty-five pound kegs, by freight, $6.25. Special arrangements with freight and express companies enable us to obtain very low rates for distant orders. Sold by Agricultural Stores, Grocers, Seedsmen, and Druggists. **CHARLES R. ALLEN & CO., 216 State Street, Hartford, Conn.**

Wholesale Agents: B. K. Bliss & Sons, New York.—Benson, Maule & Co., Philadelphia.—H. B. Arnold & Co., Boston.—O. C. Swain, San Francisco.—Geo. Wait, Montreal, Canada.

## WELLS, RICHARDSON & CO'S PERFECTED BUTTER COLOR

**Gives Butter the gilt-edge color the year round.** The largest Butter Buyers recommend its use. Thousands of Dairymen say **IT IS PERFECT.** Ask your druggist or merchant for it; or write to ask what it is, what it costs, who uses it, where to get it. **WELLS, RICHARDSON & CO., Proprietors, Burlington, Vt.**

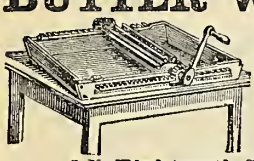
## THE LILY BUTTER-WORKER



We guarantee it the best and cheapest Machine in the world. No hard labor. Mixes the salt thoroughly, and takes all the milk out, with five to ten minutes' work. Circulars sent on application.

**C. H. R. TRIEBELS,**
Successor to Henderson & Co.,
**316 Race St., Phila., Pa.**

## BUTTER WORKER.



*The most effective, simple and convenient* yet invented. **Works 30 lbs.** *in less than* **5 minutes,** *thoroughly working out buttermilk* and *mixing the salt.* **AGENTS WANTED.** Send for circular.

**A. H. REID,**
**6 N. Eighteenth St., Philadelphia Pa.**

*Important Book for Stock Breeders Just Published.*

## STOCK BREEDING.

A Practical Treatise on the application of the laws of Development and heredity to the improvement and breeding of Domestic Animals.

**By MANLY MILES, M. D.,**
(*Late Professor of Agriculture in the Michigan State Agricul. College.*) One 12mo. Vol. Price, **$1.50.** Agents wanted to sell this book. Address
**D. APPLETON & CO., Publishers, 549 Broadway, New York.**

## Thoroughbred and Grade Jerseys.

I offer for sale, at reasonable prices for the quality, 75 head of thoroughbred and grade Jersey Heifers, and Cows of all ages. Also 10 thoroughbred Jersey Bulls, from 2 months to 4 years of age. My thoroughbreds are not equalled by any of the late importations, and my grades recommend themselves by their production. I refer to every individual who ever purchased an animal of me during the 30 years I have bred this stock. All animals sold by me are guaranteed as represented. For terms, apply in person to
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*Hambletonian Horses and Colts also for sale; best blood.*

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Apparatus, 100 eggs capacity, $25.00. Forty-one gold and bronze medals and diplomas awarded to the inventor, PROF. A. CORBETT, 7 Warren St., N. Y. City. Send for circular.

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They excel in **Egg-producing,** are **Non-setters,** I will forward young broods of chicks, age from 10 to 21 days, at $1.00 per chick, after June 1. Guarantee safe arrival in a healthy condition. Eggs $1.50 per 13. Send for Circular.
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These swine have taken first premiums in England and this country. White in color, well haired, very hardy, healthy, small waste, easily fattened, very prolific, large size. Send for circular.
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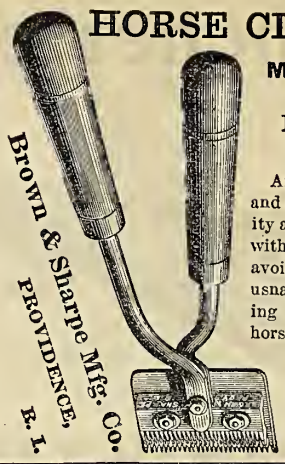


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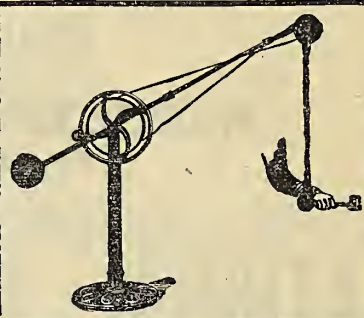

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**NEW ILLUSTRATED CATALOGUE** and *reduced Price List* of our choice thoroughbred Cattle, Sheep, Hogs, Poultry, and Dogs, sent free of charge.

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Magrane's Light Brahmas, also Dark Brahmas and Partridge Cochins, Silver-Laced and White Booted Bantams. Bronze, and domesticated Wild Turkeys. No Circulars.
Our reputation as judges and breeders is ample guarantee for excellence of our stock. Eggs in season. $3 per 13.
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## Sportsmen, Farmers, and All Others,

**Desiring Sporting Goods of the very BEST QUALITY, at the lowest Cash Prices, are invited to forward their orders to us. Owing to Special Arrangements made with our House, we are enabled to furnish GUNS, RIFLES, and EQUIPMENTS of the very best character on better terms, than can be obtained generally through the Country. Our Subscribers and Patrons will have this advantage in making purchases from us, the Goods we send out are fully warranted to be as represented. All information regarding Guns, etc., cheerfully furnished.**

## Remington's Breech-Loading Double Guns.

We have made special arrangements with the manufacturers of the celebrated Remington rifles, shot guns, and pistols, whereby we are enabled to deliver them, carefully selected, to our many friends and patrons at as low rates as they can be obtained at the factory. On receipt of price named, we will forward, *free of charge, to any address*, in the United States east of the Mississippi River, where there is an express or a freight office, any one of the guns described below, and at more distant points for a trifling addition. These guns are made 10 and 12 gauge, 28 and 30-inch barrels, weight 8 to 8½ lbs.

**No. 1.—Double-Barreled, Breech-Loading, Central Fire Shot-Gun, warranted.** Steel barrels, using paper or brass cartridges, that can be reloaded many times; 2 dozen of which and reloader, (costing $4), and 500 primers, or caps (costing $1), are given with the gun; one of the finest guns ever offered the American sportsman, combining all the most desirable features of the best imported, together with some valuable improvements not found with any other. Just as good as many of those imported at a cost of $150 to $200 or more. Price, delivered..... **$45.00**

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### Remington New Model, Extra Heavy,

with top fastening, and rebounding locks, 10 gauge, 30 and 32-inch barrels., weight 9½ to 10 lbs.

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Price, delivered, $21, $22, $25, $30, and upwards. For further particulars, see Sportsman's Catalogue.

## Fine English Breech-Loading Double Guns.

**No. 1.**—Made by Wm. Moore & Co. Bar locks, side-snap action, fine twist barrels, checkered fore and back. 12 bore, 30 and 32-inch barrels..... **$35.00**

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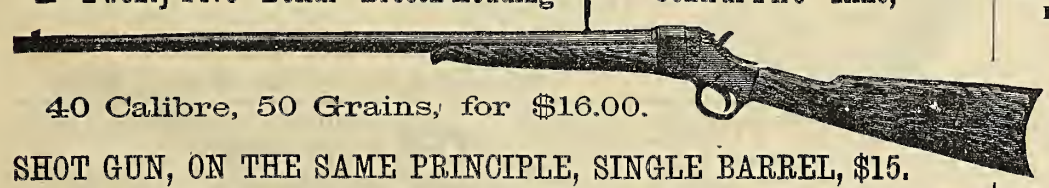
**No. 3.**—A superior gun in every respect. Made by P. Webley & Son, one of the most celebrated makers. Scott's top action, Purdy's double bolt, rebounding bar locks, pistol grip, checkered fore and back, fine engraved mountings. Patent fore-arm, laminated or Damascus steel barrels. 12 bore, 30 or 32-inch barrels, selected walnut stocks..... **$75.00**

We will deliver these guns, *freight paid*, to any point east of the Mississippi River, at prices as above, and for a trifling addition to any other points.

## A Twenty-Five Dollar Breech-Loading Central-Fire Rifle,



40 Calibre, 50 Grains, for $16.00.

### SHOT GUN, ON THE SAME PRINCIPLE, SINGLE BARREL, $15.

Both made by one of the best and world-wide known Manufacturers. Both for Military and Sporting purposes. These Rifles have until now sold for twenty-five dollars, but by a special arrangement we are enabled to sell them to our subscribers and patrons at this low figure. They are fully warranted.

We can furnish the following complete selection of lengths and sizes, with open bead sight on muzzle and 500 yard elevating sight on breech, 38 cal., either rim or centre fire. 40, 44, and 45 cal. centre fire only. The Shot Guns are made 12 and 14 bore, 28 and 30-inch barrels.

## An A No. 1 Double Barrel Muzzle-Loading Gun,

Stub twist barrels, fine selected walnut stock, fully checkered on grip. We warrant this to be a good gun. Can be had 11 to 16 gauge, 30 to 32-inch bbls. Price, **$15.00.** 10 gauge, extra heavy, 30 to 34-inch bbls. Price, **$17.00.**

## WINCHESTER RIFLES.

**Sporting Rifles,** Plain, Centennial Model, 1876. Length of barrel, 28-inch; weight, 9¼ lbs.; calibre, $^{45}/_{100}$; number of shots, 12. Round barrel, $32; half octagon barrel, $35; octagon barrel, $35.

**Model 1873.**—Sporting Rifle, Round Barrel, Plain Trigger. Length of barrel, 24-inch; weight, 8¾ lbs.; calibre, $^{44}/_{100}$; number of shots, 15. Round Barrel, $25; Half Octagon Barrel, $27; Octagon Barrel, $27.

We will deliver these Rifles, *freight paid*, to any point east of the Mississippi River, where there is an express or freight depot, and at more distant points for a trifling addition.

*In addition to articles named, we are prepared to furnish at lowest cash prices*

**RIFLES.**—Ballard's, Sharps', Wesson's, Whitney's.

" **Pocket.**—Stevens' and Wesson's 10 to 20-inch, $^{22}/_{100}$ to $^{38}/_{100}$ calibre.

" **Parlor and Gallery.**—Quackenbush's, for darts and slugs. Flobert's shoots noiseless cartridges.

**English Guns,** fine quality.

**REVOLVERS.**—Remington's, Smith's Patent, Smith & Wesson's, Colt's.

**Hunting Suits, Caps, Hats, Shoes, etc.**

*RUBBER BOOTS, RUBBER BLANKETS.*

Hunting Knives. Multum in Parvo Knife.

**Glass Balls and Traps, Game and Cartridge Belts, Rifle and Shot Guns, Targets, Saloon Targets, Boxing Gloves, Gun and Rifle Cases and Covers.**

SHOT GUN SHELLS, BRASS AND PAPER, PRIMERS, WADS, ETC. RIFLE AND PISTOL CARTRIDGES, POWDER AND SHOT MEASURES, POCKET COMPASSES.

**SKATES.**
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**Archery, Arm Guards, Arrows, Belts, Bows, Gloves, Score Books, Quivers, Targets, etc., etc.**

For Particulars of above mentioned Goods see our

New and Enlarged Edition of

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**FOR 1879.**

**ELEGANTLY ILLUSTRATED,**

WITH NEARLY

**100 ENGRAVINGS.**

This beautiful Catalogue, which is printed on tinted paper, and contains invaluable information regarding books, guns, and accoutrements for Sportsmen, will be sent *post free* on receipt of six cents.

Address "Sportsman's Department," Orange Judd Company, 245 Broadway, New York.

# HOMES IN THE WEST.

To those who are looking in the West for new homes, the lands of the

## Burlington and Missouri River Railroad in Nebraska

offer special and peculiar advantages. The lands lie in south-eastern Nebraska, adjoining the State of Iowa, and for soil, sub-soil, climate, water privileges, and for grain growing and stock raising facilities have no equals in the West.

The sales of land made by this Company during the year 1878 are equal to the combined sales of all the other land grants put together. A vast tide of people from the Middle and Eastern States has poured into this region during the last five years, and form a large and important element of the population.

The titles are perfect, and the land passes to the purchaser free from every encumbrance.

Full particulars are given on application to the

**Land Commissioner of the B. & M. R. R., at Burlington, Iowa, or Lincoln, Nebraska.**

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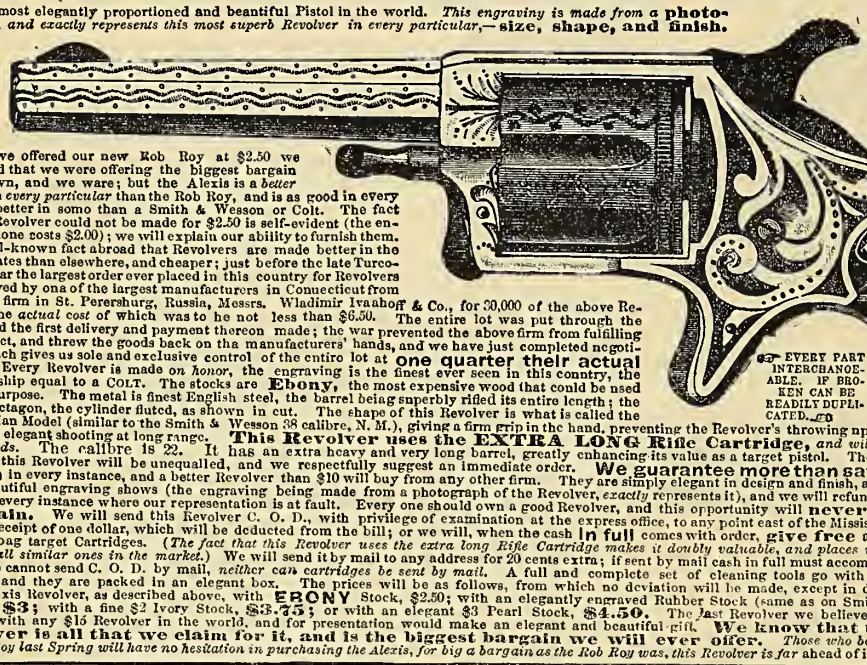
☞The most elegantly proportioned and beautiful Pistol in the world. *This engraving is made from a* **photograph,** *and exactly represents this most superb Revolver in every particular,—*size, shape, and finish.



An "A. 1" Revolver for $2.50.

**It is the most extraordinary bargain ever offered in the Gun line. Full nickel silver plate, 7 shot, self-revolving cylinder; and uses extra long Rifle Cartridges**

When we offered our new Rob Roy at $2.50 we considered that we were offering the biggest bargain ever known, and we were; but the Alexis is a *better* weapon in *every particular* than the Rob Roy, and is as good in every way and better in some than a Smith & Wesson or Colt. The fact that this Revolver could not be made for $2.50 is self-evident (the engraving alone costs $2.00); we will explain our ability to furnish them. It is a well-known fact abroad that Revolvers are made better in the United States than elsewhere, and cheaper; just before the late Turco-Russian war the largest order ever placed in this country for Revolvers was received by one of the largest manufacturers in Connecticut from a leading firm in St. Petersburg, Russia, Messrs. Wladimir Ivanhoff & Co., for 30,000 of the above Revolvers, the *actual* cost of which was to be not less than $6.50. The entire lot was put through the works, and the first delivery and payment thereon made; the war prevented the above firm from fulfilling the contract, and threw the goods back on the manufacturers' hands, and we have just completed negotiations which gives us sole and exclusive control of the entire lot at **one quarter their actual cost.** Every Revolver is made on *honor*, the engraving is the finest ever seen in this country, the workmanship equal to a COLT. The stocks are **Ebony,** the most expensive wood that could be used for this purpose. The metal is finest English steel, the barrel being superbly rifled its entire length; the barrel is octagon, the cylinder fluted, as shown in cut. The shape of this Revolver is what is called the New Russian Model (similar to the Smith & Wesson 38 calibre, N. M.), giving a firm grip in the hand, preventing the Revolver's throwing up, and producing elegant shooting at long range. **This Revolver uses the EXTRA LONG Rifle Cartridge,** *and will kill at 100 yards.* The calibre is 22. It has an extra heavy and very long barrel, greatly enhancing its value as a target pistol. The demand for this Revolver will be unequalled, and we respectfully suggest an immediate order. **We guarantee more than satisfaction** in every instance, and a better Revolver than $10 will buy from any other firm. They are simply elegant in design and finish, as the above beautiful engraving shows (the engraving being made from a photograph of the Revolver, *exactly* represents it), and we will refund the money in every instance where our representation is at fault. Every one should own a good Revolver, and this opportunity will **never occur again.** We will send this Revolver C. O. D., with privilege of examination at the express office, to any point east of the Mississippi River on receipt of one dollar, which will be deducted from the bill; or we will, when the cash **in full** comes with order, **give free** a box of extra loag target Cartridges. (*The fact that this Revolver uses the extra long Rifle Cartridge makes it doubly valuable, and places it far ahead of all similar ones in the market.*) We will send it by mail to any address for 20 cents extra; if sent by mail cash in full must accompany order; we cannot send C. O. D. by mail, *neither can cartridges be sent by mail.* A full and complete set of cleaning tools go with each Revolver, and they are packed in an elegant box. The prices will be as follows, from which no deviation will be made, except in dozen lots:—Alexis Revolver, as described above, with **EBONY** Stock, $2.50; with an elegantly engraved Rubber Stock (same as on Smith & Wesson), **$3;** with a fine $2 Ivory Stock, **$3.75;** or with an elegant $3 Pearl Stock, **$4.50.** The last Revolver we believe will compare with any $15 Revolver in the world, and for presentation would make an elegant and beautiful gift. **We know that this Revolver is all that we claim for it, and is the biggest bargain we will ever offer.** *Those who bought our Rob Roy last Spring will have no hesitation in purchasing the Alexis, for big a bargain as the Rob Roy was, this Revolver is far* ahead of it.

☞EVERY PART INTERCHANGEABLE. IF BROKEN CAN BE READILY DUPLICATED. ☜

**The Alexis.**—The new Russian Model Revolver. The readers of the *Agriculturist* are already familiar with this elegant weapon, and we hold testimonials and praises from hundreds who have purchased, in every state in the Union. As some misunderstanding has from time to time arisen since placing the *exact size* of the Alexis, we present here an engraving of the Alexis,—exact in size, shape, and finish. Immediate order will be necessary to secure one of these Revolvers, as we shall fill orders after Feb. 15, 1879. The Colt Revolver has averaged **500 per day,** necessitating our employing two sets of hands, and running both our shipping and correspondence departments **night and day,** and the mere work of opening our letters has often taken three clerks all day. Those who have bought one have frequently ordered 20 or 100 by first mail after securing a sample, and one Alexis Revolver sent to a country town has brought us more than 300 orders, in more than one instance. True worth always tells, and the Alexis Revolver is, as we state, the biggest bargain ever shown in this country. A more appropriate present could not be made to any man *or woman,* and in these times of murder and rapine it is a *sin* to leave a home unprotected. **Bay State Arms Co., 93 Water St. Boston, Mass.,** SOLE AG'TS.

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**RELIEF FOR HARD TIMES!!**
**A Sure Investment!!**
BUY LAND OF
**THE UNION PACIFIC RAILROAD COMPANY.**

This Company has **3,000,000** acres of the **Best in the world;** for sale in **NEBRASKA,** at **Prices** and on **Terms** that make it **cheaper** to **own a farm** than be without. **Short Winters! Long Summers! Come and see. Cheap fare from all principal points.**

Write for information. **Sent Free** everywhere.

**LEAVITT BURNHAM,**
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☞ Refer to this advertisement.

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**FARMS AND HOMES** **MINNESOTA AND DAKOTA**

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**OVER 1,000,000 ACRES of FINE FARMING LANDS IN MINNESOTA AND DAKOTA,**

For sale by the WINONA & ST. PETER R. R. CO., At from **$2** to **$6 per Acre,** and on liberal terms.

These lands lie in the great wheat belt of the North-West, and are equally well adapted to the growth of other grain, vegetables, etc. The climate is unsurpassed for healthfulness.

**They are Free from Incumbrance.**

*Circulars, Maps, etc., containing full information, sent free.*

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*Mention this paper in writing.*

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# Reliable Silver-Plated Table Ware.

**"Silver Steel" and "Albata" Silver-Plated.**

**Save the retailers and jobbers profit, and buy direct of Manufacturers at Wholesale Prices.**

An opportunity is now given to buy direct any of the silver-plated ware manufactured by us. The goods are made of good durable metal and will wear for years.

**These are not cheap brass goods,** like the so-called "Premium Silver Ware," with which the market is flooded, but are warranted as represented. **Remember, brass goods are poisonous!**

**We will pay postage on small packages by mail on receipt of the price.**

6 Table Knives, solid steel handle and blade, all silver-plated.....$2.50
6 Desert or Tea Knives, all silver-plated.....$2.00
12 Steel Tea Spoons, silver-plated, ornamented..$1.50
12 Steel Table Spoons, silver-plated, ornamented.....$2.00
12 Silver Steel Table Forks, silver-plated, ornamented.....$2.00
1 Gravy Ladle (8 in. long), Albata, silver-plated..... .75
1 Soup or Oyster Ladle (11 in. long), Albata, silver-plated..... .....$1.25
(See illustration, which shows style of last two mentioned articles.)
**The entire set (50 pieces).....$11.00**

**Liberal discount from these prices to dealers and agents.**

☞**Single pieces of any of the above (except the Ladle), sent postpaid for twenty-five cents.**

**ELECTRO-PLATE COMPANY,**
**Manufacturers, Northford, Conn.**

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## FARM AT PUBLIC SALE.

I will sell on the premises, on Tuesday, January 7th, at 2 o'clock P. M., the Homestead farm of J. A. Casterline, dec'd, containing 135 acres suitably divided into wood, pasture and plow land. Two miles from Dover Station, on the Del., Lack. & Western R. R., and 1½ hours from New York. The farm and buildings are in good condition, barns large, location healthy, plenty of purest spring water, and choice fruit, and in the celebrated Morris Co. peach region.

J. ANDREW CASTERLINE, Adm'r.,
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**FOR SALE.**—160 acres of land, at $13 per acre. 4½ miles from City; 80 acres under cultivation; a peach and plum orchard, grapes, currants, etc. 10 acres of young timber, two good wells, and other improvements. For particulars, address A. Wallace, Cawker City, Mitchell Co., Kans.

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**250 MARYLAND FARMS,** in Tracts from 30 to 300 acres.

Near railroad and navigable Salt-water (with all its luxuries), in Talbot Co., Md. Climate mild and healthy. Titles good. New Pamphlet and Map showing *location,* free.
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**SCROLL SAWS, LATHES, CLOCKS,** Mechanics and Farmers Tools. Catalogue free. Best goods in market at low prices.
JOHN WILKINSON, 77 State St., Chicago.

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**BEST INVESTMENT AFTER ALL.**

Country Seats and Farms of all sizes, for sale, on the North Penn. R. R., near Philadelphia. Prices low, and easy terms. Address N. GUILBERT, Gwynedd, Pa.

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**BUY MARYLAND FARMS! $7 TO $25** per acre. Catalogues sent free.
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**300 FARMS** in the best part of MARYLAND *at panic prices.* For Catalogue and Price List address MANCHA & WILSON, Ridgely, Md.

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**FARMS.**—Delaware Fruit and Grain Farms at low prices.
**A. P. GRIFFITH, Smyrna, Del.**

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**$30,000.** Best Farm in Ohio, the Miami Valley. For full particulars, address MRS. T. CUBERAN, P. O. Box 1789, New York.

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Allen's (R. L. & L. F.) New American Farm Book.....$2 50
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Baltet's Grafting and Budding..... 1 75
Barnard's Farming by Inches..... 38
Barnard's Gardening for Money..... 1 50
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| 70 | Cake Basket (do. do.) | $10 00 | 15 | 28 |
| 71 | Casters (do. do.) | $ 5 25 | 8 | 16 |
| 72 | Casters (do. do.) | $ 7 50 | 12 | 21 |
| 73 | Casters (do. do.) | $10 50 | 15 | 29 |
| 74 | Twelve Teaspoons (Meriden Cutlery Co) | $ 7 25 | 11 | 20 |
| 75 | Twelve Tablespoons (do. do.) | $14 50 | 19 | 37 |
| 76 | Twelve Table Forks (do. do.) | $14 50 | 19 | 37 |
| 77 | Child's Knife, Fork & Spoon (do.) | $ 3 00 | 6 | 10 |
| 78 | French Cook's Knife, Fork, & Steel (do. | $ 3 75 | 7 | 12 |
| 79 | Case of Scissors (U.S. Steel Shear Co.) | $ 4 00 | 7 | 12 |
| 80 | Family Scales (Fairbanks & Co.) | $14 00 | 19 | 36 |
| 81 | Men's Pure Gum Knee Boots, (Candee) | $ 4 35 | 8 | 13 |
| 82 | Boy's Pure Gum Short Boots, (do.) | $ 3 00 | 6 | 10 |
| 83 | Household Press, (W. A. Boardman) | $ 2 00 | 4 | 8 |
| 84 | Matthews' Garden Seed Drill, (E. & S.) | $12 00 | 18 | 34 |
| 85 | Cahoon's Broadcast Seed-sower | $ 6 00 | 9 | 18 |
| 86 | Woodruff's Patent Portable Barometer, (Square Case.) | $12 00 | 17 | 32 |
| 87 | Woodruff's Patent Portable Barometer, (Turned Case) | $ 8 00 | 12 | 22 |
| 88 | New Hybrid Spring Wheat, "Champlain," 3 lbs., (B. K. Bliss & Sons) | $ 2 00 | 4 | 8 |
| 89 | New Hybrid Spring Wheat, "Defiance," 3 lbs., (Bliss) | $ 2 00 | 4 | 8 |
| 90 | Breech-loading Pocket Rifle (Stevens) | $14 00 | 19 | 36 |
| 91 | Double Barreled Breech-loading Gun. (E. Remington & Sons) | $45 00 | 52 | 94 |
| 92 | Creedmoor Long Range Rifle (do.) | $100 00 | 100 | 200 |
| 93 | Creedmoor Long Range Rifle (do) | $80 00 | 88 | 170 |
| 94 | Creedmoor Long Range Rifle (do) | $60 00 | 70 | 130 |
| 95 | Shot Gun, breech-loader, (do.) | $18 00 | 23 | 44 |
| 96 | Archery Goods, Lancewood Bow and half dozen Arrows (See Description, for other Archery Goods.) | $ 1 50 | 4 | 7 |
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| 100 | Worcester's Great Illus'd Dictionary | $10 00 | 15 | 28 |
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| 106 | $15 Library do. | $15 00 | 20 | 39 |
| 107 | $20 Library do. | $20 00 | 26 | 48 |
| 108 | A Choice of Good Books. | (See Description, p. 448.) | | |
| 109 | An Excellent Watch | $10.00 | 16 | 30 |

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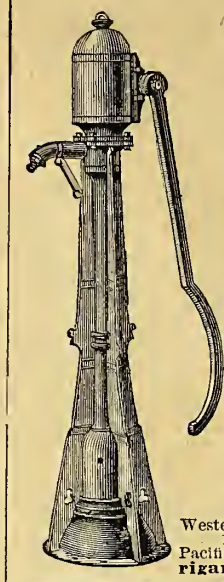

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FOR THE FARM, GARDEN & HOUSEHOLD.

VOL. XXXVIII. NUMBER 2.

PUBLISHED BY THE
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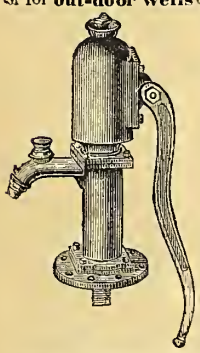

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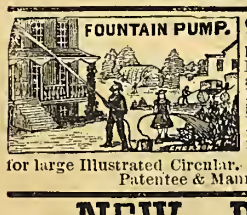


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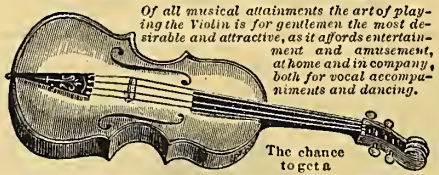

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FOR THE

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VOLUME XXXVIII.—No. 2. NEW YORK, FEBRUARY, 1879. NEW SERIES—No. 385.


## A Picturesque, but a very Bad Practice.

Our artist has depicted in the engraving, a style of farming that makes an interesting picture, but results in small profits. The farmer who does not provide shelter for his stock, is pretty sure to be the owner of cows that give little if any milk, young stock that look as if they belong to a dwarf or scrawny race, and cattle that are never fat. The frontier farmer and ranchman, may, perhaps, engage in stock-raising and be successful, even though he own no barns or shed for shelter, as cattle are cheap, and the loss of a few score head may not seriously affect him. But when he is located in a region of cold and snow, the direct and indirect losses from exposure would certainly cost more than good shelter. The better class of stockmen in the frontier States, as throughout the older sections, now have barns and sheds, and find that they pay well for the outlay. The article, "A Nebraska Stock Farm," on page 461, December number, gives an example of this fact. Sometimes there is a necessity for watering cattle through the ice, after the manner of the sketch in the lower corner of the engraving, as when wells and springs fail because of a drouth, or water-pipes burst, etc. But there are few farms where the most, or all of such accidents might not be avoided if taken in time. First, a single source of supply should never be depended upon, but two or more wells or springs should be made available, as it is seldom that both would fail at once. It is also well to collect water from the roofs of the barns and other buildings in cisterns by the means of eaves-troughs; this water, if properly protected from the entrance of foreign matter, and, if need be, filtered before using, will be of great service in a time of scant supply from other sources. And, by the way, cisterns are much more easily and cheaply constructed than is generally supposed. The value of two or three animals saved in a hundred, or a few pounds of flesh saved or added to each animal, will pay for cisterns to supply water for the whole. (For cheap cisterns see page 6, last month.) Water-pipes from springs should be carefully examined, especially as to inlet and discharge, before winter sets in, and all pipes, tanks, faucets, etc., put in order. In laying the pipes, care should be taken that they are put below all danger from frost. The possible consequences of watering cattle through the ice, are: few will get as much water as they need, on account of the crowding about the holes; some may be injured by slipping on the ice, while exposure to cold winds, and large draughts of ice-cold water, may cause a falling off in milk and flesh, and produce disease. The combined pictures also tell another story: one who follows such practices is quite sure to be a poor farmer in other respects; he gets but small crops, because of lack of properly saved manure; poorly cultivated fields, from being behindhand in his work, and possibly low prices for products harvested, because he must sell them at once, having no means for storing them so that he can take advantage of the markets. One part of a man's work is an indication of what may be expected of the rest. "A workman is known by his chips."

FODDERING AT THE STACK.

## Wanted, 50,000 Young Men.

Yes, we want, the country wants, 50,000 young men or more, to engage in progressive agriculture. Though soil culture employs more than half the people of the country who are engaged in any useful employments, all other ranks of industry are better filled than this. Agriculture furnishes the raw material for nearly all our manufactures, yet while the factories and work-shops are overburdened with skilled laborers, the harvest fields are too often worked by the poorest labor that strolls the highways. Educated mechanics, formerly successful merchants, and highly intelligent manufacturers are seeking employment by hundreds, but find the ranks of their callings full, while agriculture has plenty of room for such men. Thousands of young men "are adrift in the large cities," as the New York Bulletin puts it, "simply because they can do nothing that anybody wants done;" but let them go to the farms of the country and they will find abundant opportunity for intelligent, willing labor; at low wages, it is true, but sure to result in health and happiness, a thousand times better than the precarious existence they maintain in the city. If the trades and professions have no employment for the myriads of idle hands, the farm can furnish enough for all. The unoccupied lands of the West, the abandoned farms of the South, the many neglected fields all over the East, all offer opportunities for every idle man in the country to gain bread, clothing, shelter, and ultimate comfort and happiness; for out of the soil comes all we eat and wear, and out of the forests the material for our houses. We are not urging that the tramps and vagabonds of the cities be turned into farm laborers, for a tramp in the country is even a greater evil than a tramp in the city, and it is quite as impossible to make him work in the fields as in the shops and factories. But it is the unemployed, intelligent, active workmen that can find useful employment on the farm. And to intelligent young men, and active men out of business, but possessing some capital, from $1,000 upward, agriculture holds out tempting promises, and promises that she will fulfill to those who work for them. There are few farmers more successful than the merchant who conducts his farming on the same prudent yet progressive business principles that gave him success in trade. It is a pleasant fact to contemplate, that over four and one half million acres of new land were actually occupied by settlers in the Western States during the last fiscal year, and especially pleasant when we consider that the settlers were not emigrants from foreign countries, as in former years, except to a small degree, but were mostly from the overcrowded Eastern cities—many of the class above described. The real estate dealers make the statement, also, that the demand for small farms in the Eastern States has never been so great as within the past year or two. This movement tends to an improved condition of affairs for the whole nation, and we hope it will go on until the old and proper balance between city and country is restored.

But to the young men just coming upon the stage of action, agriculture offers special attractions. There is great need among farmers of more education in those branches of science that pertain to the breeding and treatment of animals, fertilizing the soil, growing plants, and all the various phases of the calling. Those men who are familiar with the advancing thought and practice of the time, and bring the most intelligence to their work, are the most successful farmers of to-day. So it will be in the future to even a greater degree, and those farmers and others who desire their sons to become successful, leading agriculturists, and prominent in public affairs, should see to it that these young men receive as good intellectual training as those who intend to embark in those callings that are universally admitted to require a liberal education. Veterinary medicine, agricultural manufacturing and trade, and even agricultural journalism, are also open fields to young men educated in agricultural science and practice. Last month, we gave an example of what a college-educated man had accomplished, by bringing his mental faculties, disciplined by study, to bear upon a worn out farm, and then upon improvements in dairying and even in pork-raising. There are multitudes of other similar illustrations. Like results usually follow like causes.


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**"THE FARMER'S PRIDE"—Our Steel-Plate Line Engraving,** while not fully appreciated by a few who do not understand its great artistic merits, is very greatly valued by our readers generally. As a work of art that will increase in one's estimation, and improve from year to year, it is decidedly superior to any Presentation Plate we have ever before known to be offered by any journal. (See page 76.) Read the last item but one, middle column of page 5, last month. For particulars as to receiving it, see page 75 of this paper.

## Calendar for February, 1879.

| Day of Month. | Day of Week. | *Boston, N. England, N. York State, Michigan, Wisconsin, Iowa, and Oregon.* Sun rises. | Sun sets. | Mo'n sets. | *N. Y. City, Ct., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois.* Sun rises. | Sun sets. | Mo'n sets. | *Washington, Maryland, Virginia, Kentucky, Missouri, and California.* Sun rises. | Sun sets. | Mo'n sets. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | H. M. | H. M. | H. M. | H. M. | H. M. | H. M. | H. M. | H. M. | H. M. |
| 1 | S | 7 14 | 5 14 | 2 54 | 7 10 | 5 18 | 2 48 | 7 6 | 5 22 | 2 42 |
| 2 | S | 7 13 | 5 15 | 3 53 | 7 9 | 5 19 | 3 47 | 7 5 | 5 23 | 3 40 |
| 3 | M | 7 12 | 5 17 | 4 48 | 7 8 | 5 20 | 4 41 | 7 5 | 5 24 | 4 34 |
| 4 | T | 7 10 | 5 18 | 5 35 | 7 7 | 5 21 | 5 29 | 7 4 | 5 25 | 5 23 |
| 5 | W | 7 9 | 5 19 | 6 15 | 7 6 | 5 23 | 6 10 | 7 3 | 5 26 | 6 5 |
| 6 | T | 7 8 | 5 21 | rises | 7 5 | 5 24 | rises | 7 2 | 5 27 | rises |
| 7 | F | 7 7 | 5 22 | 6 25 | 7 4 | 5 25 | 6 27 | 7 0 | 5 28 | 6 29 |
| 8 | S | 7 6 | 5 23 | 7 40 | 7 3 | 5 26 | 7 41 | 6 59 | 5 30 | 7 42 |
| 9 | S | 7 5 | 5 25 | 8 56 | 7 1 | 5 28 | 8 56 | 6 58 | 5 31 | 8 55 |
| 10 | M | 7 3 | 5 26 | 10 13 | 7 0 | 5 29 | 10 11 | 6 57 | 5 32 | 10 9 |
| 11 | T | 7 2 | 5 27 | 11 30 | 6 59 | 5 30 | 11 26 | 6 56 | 5 33 | 11 23 |
| 12 | W | 7 1 | 5 28 | morn | 6 58 | 5 31 | morn | 6 55 | 5 34 | morn |
| 13 | T | 6 59 | 5 30 | 0 44 | 6 57 | 5 32 | 0 42 | 6 54 | 5 35 | 0 37 |
| 14 | F | 6 58 | 5 31 | 2 0 | 6 55 | 5 34 | 1 55 | 6 53 | 5 36 | 1 49 |
| 15 | S | 6 56 | 5 32 | 3 8 | 6 54 | 5 35 | 3 1 | 6 51 | 5 37 | 2 55 |
| 16 | S | 6 55 | 5 33 | 4 5 | 6 53 | 5 36 | 3 59 | 6 50 | 5 39 | 3 53 |
| 17 | M | 6 54 | 5 35 | 4 52 | 6 51 | 5 37 | 4 46 | 6 49 | 5 40 | 4 41 |
| 18 | T | 6 52 | 5 36 | 5 30 | 6 50 | 5 38 | 5 25 | 6 47 | 5 41 | 5 20 |
| 19 | W | 6 51 | 5 37 | 6 0 | 6 48 | 5 39 | 5 57 | 6 46 | 5 42 | 5 53 |
| 20 | T | 6 49 | 5 39 | sets | 6 47 | 5 41 | sets | 6 45 | 5 43 | sets |
| 21 | F | 6 48 | 5 40 | 6 28 | 6 46 | 5 42 | 6 29 | 6 44 | 5 44 | 6 30 |
| 22 | S | 6 46 | 5 41 | 7 30 | 6 44 | 5 43 | 7 30 | 6 42 | 5 45 | 7 30 |
| 23 | S | 6 45 | 5 42 | 8 32 | 6 43 | 5 44 | 8 31 | 6 41 | 5 46 | 8 29 |
| 24 | M | 6 43 | 5 44 | 9 33 | 6 41 | 5 45 | 9 31 | 6 40 | 5 47 | 9 29 |
| 25 | T | 6 42 | 5 45 | 10 36 | 6 40 | 5 46 | 10 32 | 6 38 | 5 48 | 10 28 |
| 26 | W | 6 40 | 5 46 | 11 38 | 6 38 | 5 48 | 11 29 | 6 37 | 5 50 | 11 28 |
| 27 | T | 6 39 | 5 47 | morn | 6 37 | 5 49 | morn | 6 35 | 5 51 | morn |
| 28 | F | 6 37 | 5 49 | 0 49 | 6 35 | 5 50 | 0 34 | 6 34 | 5 52 | 0 29 |

PHASES OF THE MOON.

| MOON. | BOSTON. | | CHICAGO. | | N. YORK. | | WASH'N. | | CHA'STON | |
|---|---|---|---|---|---|---|---|---|---|---|
| | D. | H. M. | | H. M. | | H. M. | | H. M. | | H. M. |
| Full M'n | 6 | 8 58 | ev. | 8 46 | ev. | 8 34 | ev. | 8 22 | ev. | 7 52 ev. |
| 3d Quart. | 13 | 2 10 | ev. | 1 58 | ev. | 1 46 | ev. | 1 34 | ev. | 1 4 ev. |
| New M'n | 20 | 11 19 | ev. | 11 7 | ev. | 10 55 | ev. | 10 43 | ev. | 10 13 ev. |

# AMERICAN AGRICULTURIST.

NEW YORK, FEBRUARY, 1879.

## Hints for the Work of the Month.

[*The Hints and Suggestions in these columns are never copied from previous years, but are freshly prepared for every month, from the latest experience and observations, by practical men in each department.*]

*Liberal Feeding* is true economy. The aim should be to induce animals of all kinds to eat all they have a good appetite for and digest, by changing food and also changing the methods of preparing it.

*Oil-cakes.*—Cotton seed and linseed oil-cakes are too much neglected as food for stock. When these are mixed with equal parts of corn, the food is perfectly adapted to the sustenance of animals, because there is a proper proportion of flesh and fat-forming substances; food that is deficient in either of these elements is neither healthful nor profitable.

*Bran* is a valuable food, and it is a fact that in feeding a ton of bran we can get back a large part of its cost in the extra value of the manure made.

*The Value of the Manure* should be a serious consideration in feeding. By using concentrated foods of the kinds above referred to, we are actually laying in a supply of the most valuable artificial fertilizers at the lowest possible cost. It is, in fact, making two profits from the same outlay; one in the shape of a useful food, and one in the extra quality of the manure; and the latter is frequently one of the most important points to consider in feeding.

*The best way of Managing Manure* depends upon circumstances. It may be drawn to the fields and heaped in a pile, or spread at once upon the land, or piled in the yards. But the worst management is to scatter it around in the barn-yard and permit it to be frozen or trampled into the mud.

*To wheel Manure easily*, a few planks should be provided on which a loaded wheelbarrow can be taken on to the top of the manure heap. The saving of time in one winter will not unfrequently more than pay for the planks several times over.

*In the Southern States* no time should be lost in gathering all the manure possible, and making composts ready for planting, which begins this month.

*Oats.*—The earlier spring oats are sown the better, after the soil will admit. If not wanted for the grain, this crop will make valuable fodder.

*Clover* may be seeded immediately after oats and brushed in; a good dressing of artificial fertilizer will greatly help the clover, and prevent drying out when the foster crop is removed. The clover ought then to be stout enough to cover the ground well.

*Orchard Grass* is one of the most valuable grasses for the South. It will thrive well in open woods and shaded fields, and for pasture in the warm months there is nothing better. When sown with red clover both are ready to cut for hay together.

*Potatoes* may be planted this month on fall plowed ground, and covered deeply. If frosts are feared after the sprouts appear, they may be covered by hoeing, or a shallow furrow thrown over them.

*Preparations for Corn and Cotton* should be made at once. Where abundance of manure is not to be had, some artificial fertilizers should be procured. From two years' trials of fertilizers with corn on the same ground, the writer is satisfied that 100 bushels per acre can be grown at a profit.

*Large Crops on Small Areas.*—It ought to be the effort of every farmer to grow as much as possible upon the least ground. This is economy of labor, of seed, and of time. To this end the plowing, harrowing, and fertilization of the soil should be thoroughly well done, and the best seed used.

*Grass Lands.*—In the South there should be more attention given to permanent meadows as well as green fodder crops. There are thousands of localities well adapted for irrigation, and water meadows may be made cheaply where the ground admits of embanking and flooding. With abundant grass, plenty of stock can be kept, plenty of manure made, and then large crops of fodder, grain, and cotton will be secured. Grass occupies a prominent place as the basis of agricultural wealth.

*In the North and West*, one or two months will yet elapse before spring work can begin. But it is now a good time to prepare for the busy season.

*Seed* should be selected or procured at once. By and by there will be too much hurry to do this as well as it ought to be done. Nothing but the best should be used, and it will pay to pick out weed seeds or imperfect grains by hand if it can not be done better otherwise. Every time this is done the work will be lighter, and the quality improved.

*Stone Boats* are very useful implements. There should be several of them, and of different sizes—one for each team at least. They will be found useful for many unexpected purposes, both upon the snow and the bare ground where there are no stones. This is a good season to prepare them.

*Find Work for the Hired Men.*—A man must live the year round, whether he is working or not. If he is idle during the winter he must earn enough in the summer to sustain himself when he is idle. It is just as cheap therefore to hire men for the whole year, and to find work for them during the winter, as for eight or nine months. An intelligent farmer can easily keep his men at profitable winter work.

*Live Stock* should be kept comfortable and clean. Examine calves and yearlings for lice. These pests will be found along the back and on the neck. Rubbing the skin with crude petroleum will destroy the vermin. Kerosene oil should not be used unless it is diluted with an equal bulk of lard or sweet oil, as it will inflame the skin and cause sores and wounds. Look back at the past months for particular directions, which need not be repeated.

*Poultry.*—If the hens are kept warm, and are fed well with warm feed once a day, and provided with clean nests, eggs will soon be plentiful. Hens that have been laying may become broody, and may be set if a glazed coop is provided and placed in a sunny spot before a window in a warm poultry house. One early chicken thus raised will be worth in market during summer as much as two or three later ones.

*Avoid Exposure* of the animals to cold when they are warm. If a horse is brought in, warm and wet with sweat, rub him dry before putting on a blanket. He will then keep warm; otherwise he will become chilled by the damp blanket and take cold.

*Early Lambs and Calves* are to be provided with warm pens and kept dry and clean during February.

*Remove Ice and Snow* from about the stables and sheds, or the cows may slip and injure themselves.

*Prevent the Crowding* of animals through doors or

gates; pregnant cows are often injured by it, and abortion frequently follows. When this disease once occurs it may spread through an entire herd, so one careless act may thus cause serious loss.

## Notes for the Orchard and Garden.

Up to nearly Christmas it seemed probable that the present winter would resemble the past in its mildness, but by the time the new year fairly opened, the weather established its claim to be regarded as that of an old-fashioned winter. While a mild winter is pleasant on some accounts, it is all the better for the cultivator to have it sufficiently cold to put vegetation thoroughly to rest. Where the buds of trees and hardy plants remain in a half dormant condition only, they are readily excited by a few mild days, and when these are followed, as they are quite apt to be, by a cold snap, the buds, if not killed outright, are more or less injured and their future growth lacking in vigor. It is in view of this, that it has been proposed to protect peach trees by putting on a heavy mulch after the ground around the roots is thoroughly frozen. The object of this is to keep the roots in a frozen condition until late in spring, when danger from spring-frosts shall have passed. Whether this has been tried on any considerable scale, we are not advised. For reasons which we have not space to give here, we doubt the practicability of the scheme. As this is, to the majority of our readers, the last of the months of long evenings and leisure for reading and planning, we commend to their attention a subject that seems to belong more to horticulture than to agriculture proper—that of *Forest-tree Planting*, or as it is often termed, *Forestry*. Forestry as it is understood in Europe, is quite impracticable in this country at present, but so long as the advocates of "Forestry" induce people to care for the wood-lands they already have, and lead to the planting of more, we are not disposed to quibble about names. In former volumes, we have, from time to time, presented the subject of forest tree planting and culture as a matter of profit, and expect to do so in the future. Our present point is: In laying out plans for the coming season, and making note of the improvements to be made, let every one consider if he has not some lot or field that will yield a better return if planted in trees than it will if kept under cultivation, or even in grass for mowing or pasture. There are often outlying fields belonging to an estate, where the time consumed in going to and from them, and the wear and tear of transportation necessary in cultivating them, form a very heavy tax, and make too high a rent for ordinary farming; such lands, fields too rocky for meadow, and those too poor for culture or pasture, may often be brought into profit by setting them with trees. What trees, will depend upon the character of the land and the immediate market. All these and other points may be well considered at this time.

### Orchard and Nursery.

We regard it as a good sign that we are in receipt of letters asking for instruction in grafting. While we think that every one who grows fruit at all, can make no better investment than in such a work as Barry's "Fruit Garden," we are aware that there is a large class who expect to find in the *American Agriculturist* all that they need to know on such matters; and while we commend such works as giving instructions more in full than it is possible for us, we do not decline to give in the paper, so far as practicable, those matters that our readers ask for. But our limits will not allow us to give everything every year. In the matter of grafting, we gave in April, 1877, a very full account of the operations, made so plain by the aid of engravings, that any intelligent boy could practice them and be sure to succeed. We can not repeat this now, and advise those who ask for instructions in grafting, to send for that number. Any of the back numbers for the last 20 years, may be had post-paid for 15 c. We say that we are glad to receive inquiries about grafting; this indicates an intention

*To Renovate Old Orchards*, and to convert trees that now bear worthless fruit into profit. In all the older states there are orchards that are worthless, the varieties, probably "natural fruit," were never of any value, or if originally good kinds, they are, from starvation, by constant cropping of the ground, and by neglect of pruning and every other care, now practically useless. Before attempting to renovate such an orchard, it will be well to consider if it will pay. In many cases it will be cheaper to set out a new orchard and convert the old trees into fire-wood.

*If the Trees are of good Kinds*, it will be folly to graft them over. Pruning, scraping, and more than all, manuring, are the needs of such an orchard, and if the trees are still sound, renovation will pay.

*Sound Trees of poor Kinds* may be grafted over, as described in the paper referred to, but grafting will be of little use, unless accompanied by good culture. Merely changing the character of the tops of the trees is not sufficient. Renovation in all cases must begin with the soil. A good dressing of manure, turned under by shallow plowing, is the one thing needful in renewing an orchard.

*As to Pruning.*—Where large branches are to be removed, the best time is after the severe winter weather is over, and before the buds swell in spring. The limbs should always be sawed—never chopped—off, the cut smoothed with a drawing knife, and covered with thick paint or melted grafting wax.

*How and Where to Prune* can not be told until one has the particular tree before him, as each tree will need a different treatment. Long neglected trees are likely to have the heads much crowded, and the first need in such cases, is thinning, taking out especially such branches as cross and interfere with others. Sometimes shoots have pushed out far beyond the rest, and need to be cut back: it may be that for some cause the growth has run to one side, and the tree is lop-sided. Only the general direction can be given, secure an open, well-shaped head.

*Scraping and Cleansing.*—The best preparation that we know of for removing old bark, moss, and lichens, is good home-made soft-soap, made from lye or potash. Thin this with water, so that it may be laid on with a whitewash or other brush. Then, in one of those moist thawing times that occur late in winter or early spring, paint over the trunks and large limbs with the soap, putting it on freely. The later rains will do most of the work, but before spring opens, it will be well to go around with the scraper—an old, short-handled hoe will answer—and remove whatever loose bark remains.

*The Selecting and Ordering* of trees by those intending to plant, should be completed at once. The orders will be much better filled if the nurseryman has them before his season's work begins.

*Order directly from the Nursery.*—Deal at headquarters, and then, if anything is wrong, you know where to apply for remedy.

*Our Opinion of Tree Peddlers* has often been given. Probably nine out of ten are untrustworthy, but unfortunately, respectable nurseries send out agents, and if we say that *all* are scamps, we may wrong some honest men. If a person represents himself as an agent of a well known nursery, if honest, he will be willing to show his credentials. If one offers any new, wonderful and before unheard of thing, such as "self-pruning grape vines," peaches grafted on the "French willow," strawberries on bushes, and other such—tell him you read the *American Agriculturist*, and he will soon find his way to the gate.

### Fruit Garden.

If one is to set out small fruits, whether for home use or market, the sooner the preliminary work of selecting the kinds, and ordering the plants is done, the better. The present is one of those periods, that every now and then occur in fruit culture. There are a number of new varieties of great promise, but that have not been sufficiently tested, to warrant planting them largely. The grower for market feels much like the hunter who wished to so aim at an animal, that he would miss it if a calf, but hit it if a deer. The safe way for those who grow fruit for sale, is to plant out trial-beds of the promising kinds, this will test their adaptability to the soil, and if the result is satisfactory, give a stock of plants for setting a plantation.

*The Market and the Neighborhood* have both to be considered. If the market is a distant one, the fruit, whatever other quality it may have, must be firm enough to reach its destination in good order. If there is a local or neighborhood trade—a matter quite too often overlooked by growers, then a very different class of fruits may be grown.

*The Varieties of Strawberries and Raspberries* so recently offered that they may be regarded as new, are so many, that one may well be puzzled in making a selection. We have during the past year presented the claims of several of these, and there are still others to be noticed. The claims made by those offering the new kinds, are presented in the catalogues, which should be studied by those intending to plant, whether for home use or market.

*Pruning Omitted Last Fall*, should be attended to now as soon as the weather will allow. Grape-vines need the first care, and should be pruned long before the buds begin to swell. Currants and Gooseberries start early, and should be pruned early.

*Preparatory Work* in the way of trellises and other supports may be attended to and the materials got ready. In the family garden, the best support for raspberries, is a single wire strained between posts at the ends of the rows, and we think that the best grape-vine trellis, is that with horizontal slats 4 feet apart, with upright wires where needed.

### Kitchen and Market Garden.

The stored crops, whether in cellars or in trenches, may suffer from neglect. Those in the cellar must not be allowed to get too warm, or growth may start. Those in trenches may be invaded by field mice and rabbits, or the stock greatly injured by the running in of surface water. Frequent inspection and timely care will prevent such losses.

*Roots in the Ground.*—A share of the parsnips and salsify is usually left in the ground, to be dug in early spring, the freezing they receive does not injure them, but makes them more sweet and tender. If the stored supply runs short, these may often be dug during a January thaw, and bring a good price.

*Cold Frames* need, except in settled cold weather, almost daily attention, especially as the warmth of the sun increases, and the plants are in danger of being started into growth if airing is neglected.... In almost every neighborhood there is a demand for

*Vegetable Plants.*—Many, who have gardens, omit or neglect to provide a stock of cabbage, tomato, pepper, and other plants, depending upon some good-natured neighbor to supply them from his surplus. It is well to be neighborly in such matters, but it is also well that those who neglect to provide themselves with such plants, should pay those who are at the trouble of raising them. Many a boy, or man either, if he lets it be known that he will have plants to sell at the proper season, may establish a profitable little trade. It is about as much trouble to raise a hundred plants as it is several thousand, and when it is known that the plants may be had with certainty, those who need but a small number will buy in preference to raising them. For the very earliest cabbages, cauliflowers and lettuce for marketing,

*Cold-frame Plants* are preferable, but these have to be prepared in the previous fall. In the absence of these, the next best are properly treated hot-bed plants, and if these are well managed, they are almost as good as those that have been wintered in cold frames. Of course to get the plants early, there must be hot-beds. We are not able to give every year a full account of the method of making these important aids in gardening, and at best, we can not give so full a description of their management as one making a business of raising plants requires. As a part of his outfit, one should have a

*Book on Gardening*, not only for this, but for reference in many other matters. As noted last month, "Gardening for Profit," by Henderson, "Money in the Garden," by Quinn, and "Farm Gardening and Seed Growing," by Brill, are works that no one who undertakes to grow vegetables for sale, whether as

young plants or matured crops, can afford to be without. If one wishes merely a full account of the manner of making a hot-bed, let him send for the *American Agriculturist* for February, 1877. In some localities, where the operations are large, and while manure is dear, fuel is cheap, it has been found preferable to substitute fire heat for manure heat. The method of building and managing

*Fire Hot-Beds*, is given in a little work called "A Manual of Vegetable Plants," by I. F. Tillinghast, noticed elsewhere. The method is a sort of compromise between a hot-bed and greenhouse, and we have no doubt will be found the best in many localities. Whatever the method of heating,

*Hot-beds should be started*, as a general rule, about six weeks before the plants can be set in the open ground. For cabbages and lettuce, which go out earliest, the middle of February is the time market gardeners near New York begin operations.

*Cold Frames*, that is, glass-covered frames in which no artificial heat is used, are needed, in connection with the hot-beds, as they allow the plants to be properly hardened off before they are set out, and serve to store the stock until sold ... The old method of placing several inches of soil in the hot-bed and sowing the seeds in that, is now generally abandoned for the use of

*"Flats," or Shallow Boxes*, which are in every respect preferable. The boxes in which soap and various other commodities are supplied to the stores, are usually employed, as they may be purchased for a small sum. Each box, being sawed in two, will make two flats, the cover making the bottom of the second; nail firmly all around. If more convenient, flats may be made outright from ¾-inch stuff. Make them 2, 3, and 4 inches deep.

*Soil for the Boxes* should be light and rich; if none was prepared and put under cover last fall, it may be difficult to procure it now. The soil under a manure-pile will usually be unfrozen, and by removing, or turning over the pile, the needed soil, well enriched with fine manure, may be secured.

*In Sowing the Seeds* in the flats; after having made the soil level, and equally firm in the corners as elsewhere, sow the seeds in regular rows, 2 inches apart, and very thinly in the rows. Avoid placing the seeds too deep; half an inch is *the deepest* that small seeds should be covered, and less is generally preferable. With these and all other seeds, press down the soil to bring seed and soil in close contact.

*The Hot-bed for a Private Garden*, need not be started so soon as where plants are to be sold. The first week in March is proper for the climate of New York, and earlier or later for south or north.

*Those who have no Hot-beds*, may raise plants enough for an ordinary garden by using the same "flats" in the kitchen window. Those who will take the needed trouble, can raise all the plants required in the family garden in this manner. So soon as large enough, the plants are to be

*Transplanted* from the flat in which the seed was sown to another similar flat, giving them more room. Upon the proper doing of this the excellence of the plants will largely depend. Next month will be the proper time, when we shall have more to say on the treatment of the plants.

*What to Sow.*—Cabbages, Cauliflowers, and Lettuce, are the earliest to be set in the open ground, and should be sown first. Tomatoes and other plants from warm climates may be sown two weeks later. As an early cabbage, nothing has yet superseded the true "Jersey Wakefield." Some prefer the "Early York," but that is too small for market. "Henderson's Early Summer" is the earliest *hard* cabbage. For second early, and for general use everywhere, nothing surpasses the "Winningstadt." Among Cauliflowers, the "Early Erfurt" is the most generally sown, and there are new kinds offered. In Lettuces, the best heading kinds are "Tennis-Ball," "Boston Market," and "Butter;" the "Early Simpson" is a showy early kind that does not head. See the Catalogues for others.

*Seeds for Out-door Sowing.*—The catalogues are usually out this month; they should be well studied, and the supply likely to be needed ordered early. There can be no more ill-judged economy than sowing doubtful seeds, whether the doubt is as to their age or name. It is vastly cheaper, every way, to throw away all such and start afresh.

*Novelties* are offered every year, and while many of these pass out of sight, once in a while a real prize turns up. The testing of novelties is one of the pleasantest parts of gardening, and while no established sort should be given up for an untried one; the new things that promise well should be tried as far as one's means allow. The Egyptian Beet amply repays one for scores of failures.

*Getting Ready.*—Much in-door work and some out-door work can be done in the way of preparation. Of the latter, the cutting of pea-brush is a job that is often delayed. While there are substitutes that answer tolerably, and must be made to serve where brush can not be had, we have found nothing quite so satisfactory as good "sticks." We illustrated in May last a wire trellis that is the best substitute we have tested. A second growth of white birch makes the best pea-brush. Bean poles *may* be dispensed with, but as with peas, we have found no substitute quite equal to good poles. Last year we procured a set of fine straight red-cedar poles, and are probably provided with bean-poles for the rest of our gardening days.

*Implements.*—Overhauling and putting these in order, is useful work for stormy days. The woodwork, if not painted, should be treated with *crude* petroleum, several coats being applied at intervals, until no more will be absorbed. Wood thus treated, is practically indestructible. The grind-stone and a sharp file should put all cutting edges in order; cultivator-teeth, hoes of all kinds, spades, etc., should be ground; the labor at the grindstone now, will save much labor later. Rakes should be filed sharp; there is no more efficient weeder than a rake.

*To keep them from Rusting* while they are idle, it will be well to use the preparation noticed in Dec. last. Melt together lard and rosin, a half a pound of the first, to a piece half the size of a hen's-egg (more or less,) of the second. When melted, stir until cool. Keep this from dust, and rub it over all iron or steel surfaces that are likely to rust.

*Seed Sowers and Hand Cultivators.*—There are several implements now made, that are most valuable in the garden, even if it be but a private one of moderate size. They consist of a frame with plow handles, by means of which the affair is pushed in advance of the operator. In one form there is a seed-sowing attachment, that may be altered to sow from the finest to the coarsest seeds. The seed-sower being removed, cultivating teeth of different styles may be attached to the same frame, and then we have a most efficient cultivating and weeding implement. We have three or four of these, each of which has its peculiarities, which we allow the advertisers to set forth; we can only say, that either is worth vastly more than its cost, and whoever once uses either of them, would be at a loss to manage his garden without it.

## Flower Garden and Lawn.

Much more work can be done in-doors than in the open ground. The planning of improvements, if any are to be made, should always result in a working map. If any considerable changes are to be made, it will facilitate the work surprisingly, when operations commence, to have a map drawn to a scale. The thinking and planning having all been done beforehand, no time will be lost. The care against heavy snows, suggested last month, may be needed now. Evergreens are especially liable to injury in their lower branches; when trimmed *up*, their beauty is forever destroyed.

## Greenhouse and Window Plants

The great enemies to house-plants—insects and dust—are never vanquished. In the Notes of last month general suggestions are given for the warfare upon insects. As new growth pushes, these find acceptable food and multiply rapidly. Days are now more frequent in which air can be admitted from without. Our correspondence tells of disasters that are inseparable from "modern improvements." If we light our houses with gas, we must limit the house-plants to only the most hardy in this respect. We have known even Ivy, one of the most rugged of plants, to succumb to gas. Escaping gas is very deleterious to plants, but that is so unpleasant to the household that the escape is stopped before it does much injury. It is the products of the combustion of gas that are so unfavorable to plants, and there is no help for it.

*containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of room elsewhere.*

# FREE.

**Many Good, Very Desirable Articles** can easily be obtained by any of our readers **without Cost**, during *this* leisure month of **February.** A list of them is given on the last cover page of this paper, and a fully Illustrated Descriptive Sheet will be sent to any one who simply asks for it by Postal Card. The *theory* and mode of distributing articles free, is very simple. No matter how good or useful this Journal may be for any one, it will not benefit him if he does not know of the fact. Again, there are many who do not want the trouble of writing and forwarding their own subscriptions, and they let it pass on from month to month to save trouble. Now, the Publishers find it desirable to have some one or more at every post-office town who will act as a friendly agent, and gather and forward old and new subscribers. They might appeal to their friends to "work for the good of the cause," but they prefer to offer these premium compensations, and they believe it will pay their friends to make an effort to secure them, which they can readily do *this month.*

**A Very Good COMPOUND MICROSCOPE, at a Low Price.**—During a year past, many letters have come from those having our Simple Microscope, asking if we could not devise and get manufactured at a low price something that would supply the place of the costly **Compound** *Instruments.* Many experiments and efforts have been made in this direction, and they have finally been successful in producing a fine *Compound* Microscope, with *Camera Lucida* attached, at less than half the cost of any equally good instrument ever before offered in this country. They are not yet offered to the general public, but a full description, with details of price, etc., will be sent to any of our readers interested in a Microscope of this kind, and all such readers are invited to write us, at once.

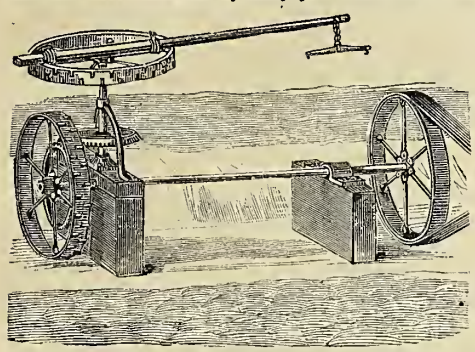
**The Simple Microscope** supplied to our readers last year, can be had by any subscriber for 1879, at a cost of 50 cents if taken at the office, or for 70 cents if delivered free anywhere in the United States or Territories. The Price to all others, not subscribers of this Journal, is $1.50 at the office, or $1.70 if delivered free. Even at $1.50 it is hardly half the cost of any other equally valuable and serviceable simple Microscope, with 3 lenses, that we have ever seen.

**The Greatly Increased Circulation** of the *German Agriculturist* affords us gratifying assurance, that its many improvements are being observed and appreciated. The splendid full-page engraving which now appears in every number, is richly worth the whole year's subscription price. Every German cultivator and laborer on the farm, or in the garden, should have the paper; while its varied household departments make the journal invaluable to every German home, either in the Old World or the New.

**A NEW PREMIUM—And a Pocket Revolver, Cheap.**—So many write us for good, low-priced revolvers, that we have arranged to supply those who want them, thus: 1st—A first-rate, steel-barrel and lock, *nickel-plated*, 7-shooter **Revolver,** Calibre 22-100. Made at the celebrated Remington Arms Works, weight 7 ounces. It is as good as any made for anything like the money, and good enough for anybody who wants such an implement. We have fired one 100 times, and found it work perfectly. It will be sent free to any part of the United States, post-paid, by mail, to any one sending only 5 subscribers to the *American Agriculturist*, at $1.50 a year, or 10 subscribers at the 4-club rate of $1.25 a year. [Or it will be forwarded free by

mail, on receipt of $2.50. It is as good for use as any $5 or $10 revolver of like calibre.] **2d.**—A larger 5-shooter Revolver, nickel-plated, calibre 32-100, weight 11 ounces, will be presented for 7 subscribers, at $1.50 each, or 12 at $1.25 each, delivered free, as above. [Or it will be forwarded free, as above, on receipt of $4.]

**A Convenient Horse-Power.**—On the farm of Mr. Cooper, in Orange County, N. Y., we recently saw a home-made horse-power, such as many farmers might get up at little expense. All the running-gear, save the belt-wheel, came from an old Buckeye mowing-machine, that had been worn out by many year's service in the



harvest field. The axle, with the beveled cog-wheel, was set on end, and the latter geared to a corresponding wheel in the drive-wheel of the mower, which in turn was attached to a long shaft, as represented in the engraving. This shaft was bedded in blocks of timber, and carried a belt-wheel on its other extremity, as shown. A pole was fastened on top of the upright shaft, for the attachment of the horse. The whole apparatus is sunk in the ground beside the door of the thrashing floor, so that only the upper halves of the wheels appear above ground.

**Bound Copies** of volume 37, and of every previous volume back to Vol. XVI. (1857), neatly bound, with gilt backs, Index, etc., are supplied at $2 each (or $2.30 if sent by mail). See Publishers' Notes, 2d cover page.

**Annual Register of Rural Affairs** for 1879, Luther Tucker & Sons. This is the 25th year that this little volume has made its appearance as regularly as the year comes around. The principle articles in this issue are on electricity, containing valuable practical suggestions; "Pure water for Health," talking about proper drainage, arrangement of outhouses, care of cisterns, wells, etc; construction of farm buildings; and not the least interesting, a long chapter on "Improved Farm Machinery," plainly enough by our friend Mr. J. J. Thomas, who apparently grows younger as he advances in years. Sent from this office at the publisher's price, 30 cts., post-paid.

**Prickly Comfrey Once More.**—In November last we gave a summary of our experience with, and the reports received on, Prickly Comfrey; in this it appeared that the greatest objection yet made to it as a fodder crop is, that animals must generally be taught to eat it. As all direct testimony concerning the plant is of value, we give the following from Geo. H. Rice, a market gardener at Worcester, Mass. Mr. R. says: "I have used it two years, feeding this year largely to the cows, and to four horses occasionally, and my experience is that after once learning to like it, there is no food they relish better. I fed two cows on it for three weeks, and when they had comfrey, they cared little about going to the pasture at all, and would always come up when we went to cut the comfrey, and the horses would neigh and thrash about more when a load of comfrey was wheeled in than for any grain we could give them. After feeding the cows three weeks on comfrey, we changed to sweet corn fodder, and the result was a reduction in the yield of milk. I have made some inquiries, and am led to believe that those who have given it the best trial are the best satisfied, and that for soiling and milk-farming it will prove a very valuable forage plant." Mr. R. sends also some favorable answers received to inquiries made of some of his friends. It is claimed that the comfrey gives a supply of fodder in spring earlier than any other plant. If any of our friends can give us the date at which they make their earliest and latest cuttings, we hope they will furnish us the facts.

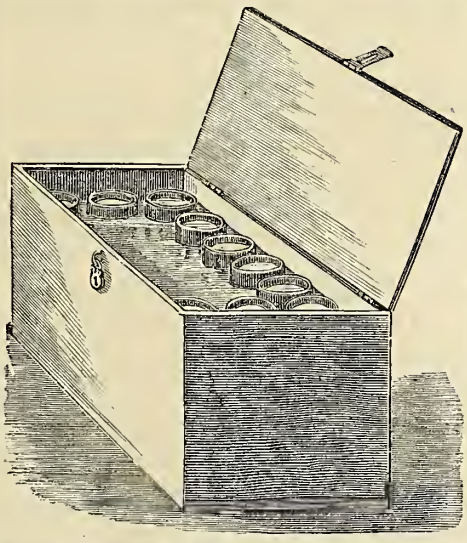
**Castile Soap.**—"C. C." wishes to know how this differs from other soap. The hard soaps made in this country are almost exclusively from animal fats; in the south of Europe, where the olive grows abundantly, the poorer kinds of olive oil are used for soap-making. Common soaps are soda and animal fat. Castile soap is soda and vegetable oil. In making Castile soap, great care is taken to avoid an excess of alkali (the soda), only just enough being used to neutralize the oil. On this account the soap is much milder, and may be used on wounds and other surfaces where common soap would irritate and give pain. The mottled appearance of Castile soap is due to a small quantity of solution of copperas (sulphate of iron) that is stirred into it before it hardens; this leaves a bluish oxide of iron in the soap which, when exposed to the air, becomes changed to the red-oxide. White Castile soap is also sold, which is the same as the other, without the coloring. Though called Castile, it is by no means exclusively made in Spain, the largest share coming from the south of France, and indeed it is generally known in Europe as Marseilles soap.

**Hartshorn and Ammonia.**—"Mrs. H. S. J." wishes to know what is the difference between Hartshorn and Ammonia. There is no difference. When animal matters are placed in a close vessel and heated, and the vapors which come off are condensed, the liquid will be found to contain a great deal of ammonia. This was one of the original methods of making ammonia; the freer from fat the animal matter, the purer would be the ammonia; the animal matter in horns being very pure, this was used, especially the horn of the deer or "Hart." All distilled liquids were in olden times called spirits, and that obtained from the horn of the hart was called Spirits of Hartshorn, though there was no spirit, or alcohol in it. Afterwards cheaper methods were discovered, and when the nature of the product was studied, it was found to be ammonia—which is a gas—dissolved in water. The proper name is Water of Ammonia, though the old name, Spirits of Hartshorn still clings to it. Ammonia is now largely produced in the manufacture of illuminating gas, and is separated from that as an impurity, but is saved to furnish the various compounds that were formerly made by the slow process of distilling deer's horns.

**Farm Science in Georgia.**—Commissioner Janes will not be at fault if Georgia farmers are not informed of all the modern ideas in agriculture, with pamphlet after pamphlet from the State Board of Agriculture; sensible pbamphlets, too. The latest attempt in this direction is "The Farmer's Scientific Manual." Though containing some things that are of little practical use, it must, if carefully read, be of great value to the intelligent agriculturists of that State. The chapters on plant growth, structure, etc., feeding, soil fertilization; drainage, irrigation, present much of the valuable information contained in larger books pertaining especially to these subjects. We find that "Harris' Talks on Manures" is frequently copied from, and also Johnson's "How Crops Grow," and "How Crops Feed."

**Cutting Roots.**—"A. B. C.," Ulster Co., N. Y. For cutting only a few roots in a season a sharp spade may be used. A bushel of roots may be sliced in this way by an active man in from one to two minutes.

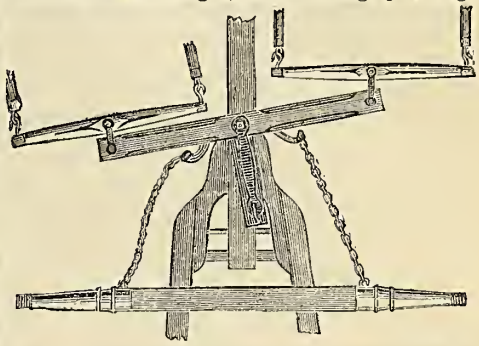
**Milk Setting in Cold Weather.**—Dairymen are sometimes troubled in the fall and early spring, about their milk setting. At these seasons it is hardly warm enough to use ice, and too warm for open setting. We recently saw, on a well-known dairy farm, a simple ap-



paratus that effectually overcomes this difficulty. It is a simple wooden chest, set in a cool place and partially filled with water, as shown in the engraving. The deep cans are placed in the water, where they remain until the cream rises, under comparatively similiar conditions to those obtained by the use of ice in summer. The water is occasionally renewed, or kept cool by a little ice.

**Virginia Hogs** have considerable attention devoted to them, by the Commisioner of Agriculture of that State, in a recent phamplet on "The Hog; varieties to raise, general management and diseases." Such pamphlets, if generally distributed to, and studied by, the farmers throughout the State, ought to be productive of much good in conveying information concerning improved methods of practice in stock raising, grain growing, and other branches of agriculture.

**The Whipple Guide.**—Wagons and machines, drawn on wheels, are often impeded in their operation by stones and other irregularities in the road, and these obstructions are especially troublesome from the fact of the pole being violently thrown to one side or the other, according to which wheel meets the obstacle. This irregular motion causes undue wear and tear to horses, harness and wagon, and adds a large percentage



to the wrong side of the profit and loss account. To obviate this difficulty, the "Whipple Guide" has been devised, and is manufactured by the Semple & Birge Manufacturing Co., St Louis, Mo. The engraving shows the principle on which this "guide" works; when either wheel strikes an obstruction, and the axle is thrown askew, the chain on that side tightens, and shifts the draft accordingly, so that the pole is kept in position, and the obstacle more easily overcome, without inconvenience to the team or undue strain to the wagon.

**Oats and Rye for Fodder.**—"J. B.," Middleboro, Mass. Oats are a very good fodder for cows, whether green or dried like hay. When mixed with peas the fodder is greatly improved. Rye is a good soiling crop, and although it has been said to reduce the milk, we have never known such a result. But it is a necessary crop for this purpose, because there is no other to take its place as the first green spring crop, unless it be wheat, which we think preferable to rye for use as fodder.

**Kind of Lime for a Compost.**—"E. H. F.," Easton, Conn. Lime that has been slaked by exposure to the air, called either "air slaked" or "dry slaked," is the form used in composts, and for spreading on the land. The other forms are unsuitable.

**American Wheat in Spain.**—The first cargo of American wheat was landed in Barcelona, Spain, about the middle of last November, and created quite a sensation among the dealers. Previously most of the wheat handled at that market has been Black Sea and Hungarian, but the American was judged to be equal to the best grades of those varieties, and this cargo has called for about 25 cargoes more. The amount of the shipment was 72,000 bushels, the price obtained $3.70 per 120 lbs., and the cost of the freight was $18,000. The only unwelcome feature of this item of news is that the grain was carried in a British steamer, and that the cargoes further bargained for are to be carried in British vessels. We have at present no direct steam communication with the ports of the Mediterranean. Not until American steamship lines are established to all prominent foreign markets can we hope for the best returns from the sale of the products of our farms, mines, and factories.

**Barley and Wheat Soils.**—"J. N. L.," Youngstown, Ind. Barley does the best on a clay loam soil; the more dry the better, if it is thoroughly drained. Answers to your wheat questions will be found in the article on page 48. The new spring wheats "Defiance" and "Champlain," which our publishers are offering as premiums, were grown very successfully in many localities last year. Barley was quite as profitable a crop last year as wheat, in many sections, and taken one year with another, ranks well up with that staple crop. Pop-corn pays very well so long as it is not a general crop, as the demand for it is necessarily limited. It needs a light loam "corn soil." The crop has to be kept on hand a year, so that it may become thoroughly dry before marketing.

**Berks Co. Poultry Exhibition.**—We have received from the Secretary an interesting report of the annual exhibition of the Berks Co., Pa., Poultry and Pet Stock Association. It was a large and important exhibition, which, it is hoped will result in much good to the poultry breeders and farmers of that section. The expectation is a just one, for the report indicates an intelligent, energetic spirit among the officers of the Society.

**The Position of Agriculture.**—In his essay on "Farming," Emerson writes:—"The glory of the farmer is that, in the division of labors, it is his part to create. All trade rests at last on his primitive activity. He stand close to nature; he obtains from the earth the bread and the meat. The food which was not, he causes to be. The first farmer was the first man, and all historic nobility rests on possession and use of land. Men do not like hard work, but every man has an exceptional respect for tillage, and a feeling that this is the original calling of his race; that he himself is only excused from it by some circumstance which made him delegate it for a time to other hands. If he have not some skill which recommends him to the farmer, some product for which the farmer will give him corn, he must himself return into his due place among the planters. And the profession has in all eyes its ancient charm, as standing nearest to God, the first cause."—If agriculture really occupies this position among the industries, how important it is for the farmer to show proper respect for his calling, by doing his work in the best manner, by employing the best methods, by making use of all that science and experience teach, in order that he may reap the greatest possible results, and thereby compel people in other callings to believe what Emerson says of this one.

**Oil Cake vs. Corn.**—"V. S.," Lena, Ill. Where corn is worth 18 cts. a bushel and oats 13 cts., you can not afford to pay $2.00 per bushel for oil cake, either cotton-seed or linseed. For feeding to animals, oats and corn are about equal in value, weight for weight, though containing somewhat different proportions of food constituents; decorticated cotton-seed cake is worth about *twice* as much per 100 lbs. for food as either corn or oats, but no more. In the Eastern States the latter stands no higher in the market than corn, and is often less in price.

**"A Manual of Vegetable Plants,"** is the title of a work by Isaac F. Tillinghast, of Wyoming Co., Pa. This work was sent to us when it first appeared, and through some oversight it was not noticed at the time. The firm of Tillinghast Bros. are largely engaged in raising plants for sale, and this manual, by one of its members, gives the results of their experience, and their manner of operating. Its chief feature is the substitution of hot-beds heated by flues for those heated by manure—though its teachings throughout are full and practical. The price, 75c., seems large for so small a work, but, as the author observes, the value of ideas is not to be estimated by the amount of paper used in conveying them, and we do not doubt that to those who would engage in this branch of gardening, the work will be found a profitable investment. Sent from this office.

**Butter-Packages.**—The three engravings below, represent some of the butter-packages used on "Deerfoot Farm," which we described last month. Fig. 1, is a cubical wooden box, inside of which is a tight-fitting tin box, each having a separate cover. In the center is a quart tin can for ice; around this are arranged 4 one pound triangular "balls" of butter, each wrapped in a piece of muslin. These packages go to certain families who are regular customers. In fig. 2, is represented the package used in winter for shipping to larger customers; it is a box made of extra heavy tin, about 2 ft. long by 15 inches wide and 6 inches deep; the butter balls are set on end in this, being wrapped in muslin as before. Fig. 3

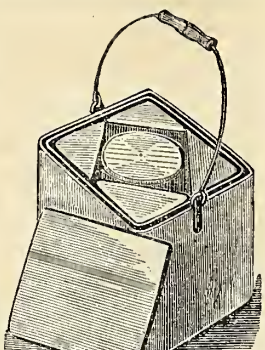


Fig. 1.—BOX FOR SUMMER.

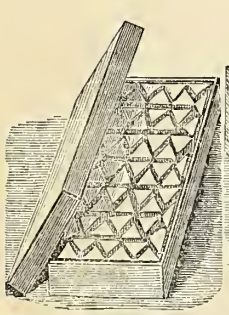


Fig. 2.—LARGE BOX.

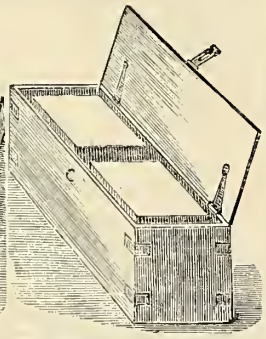
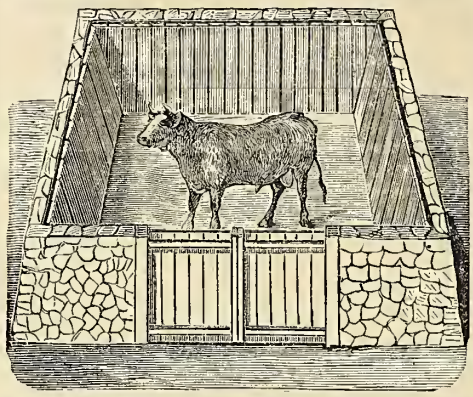


Fig. 3.—BOX FOR WINTER.

shows the summer butter package; this is a wooden chest, about 2½ feet long, by one foot wide and deep; inside this are set two tin boxes, each holding 48 one pound pats, and between them is left a space for ice. Mr. Burnett prefers tin to wood, as imparting less taste to the butter, though it should be remembered that all of this butter goes to hotels and families, where it is immediately consumed, so that it has no time to become injured, as might be the case if it had long contact with the tin.

**Bull-Yard.**—A bull when turned into a yard surrounded by a rail or board fence, will often demolish it or injure himself, and we have known a handsome animal



to greatly mar his appearance and cause himself much suffering by breaking his horns on a stone wall. On the farm of E. F. Bowditch, Framingham, Mass., we recently saw a bull-yard that effectually prevents all such accidents. The yard was perhaps 20 feet square, and surrounded by a high and strongly built stone wall, against the inner side of which is built a secondary sloping wall of plank, as represented in the engraving. This prevents the bull from getting near enough (when approaching it sidewise) to injure his horns, as his blows will glance off and upward, and there is no chance to get a purchase with his horns in the wall.

**Water-Proof Boots.**—"H. M." It is not desirable that boots, as a general thing, should be absolutely water-proof, as whatever keeps water out will keep it in, and whoever has worn India-rubber boots for any length of time, knows that retaining the perspiration of the feet soon puts them in a very unpleasant, half par-boiled condition that is not desirable. Still, water-proof boots are useful in an emergency, to be worn for a short time—as in doing the chores in bad weather. A pair of good rubber boots will answer this purpose, or a pair of common cowhide boots may be made water-proof after the method of the New England fishermen. These people, exposed to all weathers, have for a century used the following compound: Tallow, 4 oz.; rosin and beeswax, 1 oz. each; melt together and stir in Neatsfoot oil, equal in bulk to the melted articles. The boots are warmed before a fire and this composition is rubbed into the leather, soles and uppers, by means of a rag. Two applications will make the leather quite water-proof.

**Pearl Millet in Georgia.**—R. M. Wade writes from Whitfield Co. that he formerly cultivated Pearl Millet in the southern and middle parts of that State, and found it much better than any other green forage, but preferred corn for dry fodder. He sowed it in drills 2 feet apart, plowed once, and hoed once; it gave from 6 to 10 cuttings in the season, this being a much greater yield than is possible from corn. Mr. W. states that in Ga. it is known as "Cat's-tail Millet"—an appropriate name, as a ripened spike of it is much like a Cat's-tail head.

**An American Forest in England.**—Epping Forest, the remains of a royal deer forest of the olden time, stretching out from the eastern skirts of London, is to be "preserved forever as an open space for the recreation and enjoyment of the public." This comes after a struggle of 15 years in the courts and in Parliament. And now Mr. Wallace, the distinguished naturalist, in a magazine article reprinted as a pamphlet, asks "How best to deal with it." This is his plan. The part that is really forest now, is to be replenished with all British and Continental trees and shrubs, and so made to represent European forest. For the rest he proposes to establish, bodily and on a fairly large scale, separate forests of the trees and shrubs of each and every temperate forest region that will bear the climate. The richest will be on the one hand a Japanese forest, on the other two North American forests, one of the Atlantic, the other of the Pacific side. That will make an arboretum on a worthy scale. And England, of all the world, has just the climate for it. On reading Wallace's pamphlet which sets forth this scheme, in a very taking way, an excellent friend of the *American Agriculturist*, who is interested in every rural improvement, wrote to us, proposing that we Americans shall furnish the material for the American forest, and offers himself to contribute at the rate of a thousand trees for it. This expression of an interest in his project, we suppose, will gratify Mr. Wallace not a little. Who will follow this offer up?

**Scrappel—Another Recipe.**—In Nov. last we gave a recipe for making this preparation, which seems to be peculiar to Pennsylvania. The following by "F. E. J.," also of Pa., differs somewhat from the other, and is given as a seasonable item: "Boil head, liver, trimmings from hams and shoulders, and skins from pieces intended for lard, until easily separated from the bone, then put them through the sausage cutter. Into the liquor in which the meat was boiled, all the small bones being strained out, stir in equal quantities of Indian and buckwheat meal, sufficient to make mush—into which stir the chopped meat, with seasoning of salt, pepper, and sage. Allow the whole mixture to cook a few minutes, stirring it constantly. Then pour it into vessels to cool. Being more thoroughly cooked than the usual way it "keeps" better. To serve it, it is sliced and fried.

**Corn and Cotton Compost.**—"G. W. B.," Cedar Bluff, Ala. If you have the material at hand, or can obtain it cheaply, you can not do better than to make a compost of wood-ashes and cotton-seed cake. The important point in making this is, to be sure and not allow the valuable ingredients to waste, such as the escape of the nitrogen in the form of ammonia. To prevent this, it is only necessary to cover the heap with fresh loam. If there is no smell, there is no waste. This compost will furnish all the elements of fertility required by either the cotton or corn crop. Or an excellent compost can be made of cotton-seed cake and stable manure, taking care to cover the heap with fresh earth.

**What or Which Is the "Farmer's Pride?"**—It may be a pleasant thought for any one to ask himself, or herself, "what is *my* greatest pride?"—Perhaps it will be as difficult for most to decide the question, as it is for our friend, J. S. Pound, School Superintendent of Yellow Medicine County, Minn. In sending for his *American Agriculturist* Engraving, he writes pleasantly thus:...."As I am a farmer, I am quite anxious to see what, less than the *entire farm*, can be a 'farmer's pride.' This A. M., when I looked at my cows, I thought *they* were my special 'pride.' Then when I fed my Berkshire pig, I called *him* my special 'pride.' When my Black Poland-China pigs came along asking mildly for their share of the basket of corn, I concluded they would share with the Berkshire. My Brahma and Black Spanish fowls called forth the same idea. Finally, when my old Mules,—that have done me good service for fourteen years,—ten years on a prairie farm, performing the duties of carriage team for the family, and drawing your humble servant over the county in the performance of my duties as Superintendent,—started across the prairie to town, drawing myself and daughter in a covered sleigh at the rate of 8 or 9 miles an hour, and anxious to go still faster, I said truly, my *team* is my 'pride.'"

**Sawed Fence Posts.**—"W. E. K.," Kidville, Mich., sends us the following sketches and description of his method of making fence posts:—"The engravings show how to saw posts out of small timber. By making a diagonal cut, as shown in fig. 1, two posts can be made from a comparatively small stick. If the log is a little

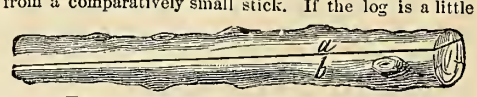



Fig. 1.—THE FIRST CUT OF THE LOG.

larger, a transverse cut, as indicated in fig. 2, will make four. It will often happen that *a* in fig. 1, the butt of the post being at the small end of the log, is only large enough for one post, while *b* may be cut into two. Fig. 3 shows the finished post. The cost of sawing should not exceed three cents per post. The superiority of sawed

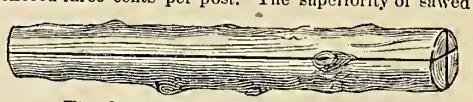


Fig. 2.—FOUR POSTS FROM ONE LOG.

fence posts over split ones is such that they should be used whenever the expense of obtaining them is not too great. Frost will frequently "heave" split posts out of the ground, but it is very rare that wedge-shaped sawed posts are thrown out. There is a great saving of timber

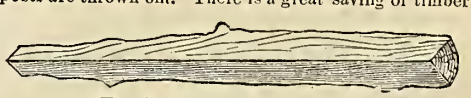
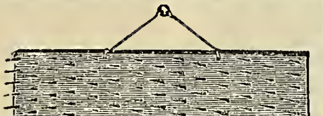


Fig. 3.—THE FINISHED POST.

effected by sawing, and tough, knotty trees that can not be split may be sawed into excellent posts. A straighter and better fence can be made with the smooth sawed faces than with the irregular hewn or split posts."

**"Draining for Profit and Health."**—There are certain works which may be regarded as standard authorities on their special topics. When first published they gave the best exposition of the matter treated to be found, and rendered any other publication on that subject unnecessary, for a long while to come. A work of this character is "Draining for Profit and Health," by Col. Geo. E. Waring, Jr., and we might go on issuing it year after year, in the confidence that, for many years to come, no other work would supersede it. Still there are improvements in so simple a matter as tile draining, and though these are not likely to be so great in many years to come, as to make a new work necessary, it is our desire that the purchaser, when he buys a work, shall have one in which the information is brought up to the present time. With this in view, we have, with our standard works in all departments, adopted this plan. Instead of reprinting the work as originally produced, year after year, we give additional chapters, which allow the author to add whatever may be new, or to correct and modify such teachings in the original as time and later experience have shown to need changing. As with other standard works, a New Edition of Waring's Draining is not a mere *reprint*, but actually a *new* edition, in which by the use of additional Chapters, the work is brought up to the present time. A new edition is now in press, in which the body of the work is thoroughly revised, and new matter added. Sent post-paid, by mail, for $1.50.

**A Self-Acting Whip.**—When visiting a dairy farm in Orange County not long ago, we noticed that the churns were driven by a power operated by a fat and lazy pony, in a shed near the dairy. The pony is often inclined to lag, thus lessening the speed of the power, and making the churning irregular. To keep him to a sense of his duty, a board, 2½ feet x 8 inches, is filled with ten-penny nails having sharpened points, as represented in the engraving. This is hung up a foot or so behind the pony, so that when he lags the nail points tickle his fat thighs and start him up without hurting him much.



**The "Hub" Almanac** for 1879, from the "Hub" Publishing Co., of N. Y., is a good sample of the printing done at that establishment, which, by the way, has an interesting history. The older boys and girls all remember Webster's spelling books—well, they were all made, more than a million of them, in the building where the "Hub" is printed, at 323 Pearl Street. With such a history for their building, the "Hub" people think they must turn out good work, and they live well up to their inclinations. The "Hub" is said to be the best journal in the world devoted to the interests of the carriage building industry, and certainly none can be handsomer.

**Stock Needed for an 80-acre Farm.**—"T. B.," Philadelphia. The stock required for an 80-acre farm would depend on the system of farming followed. In grain growing and in general farming there would be needed two horses, wagon, and two carts and harnesses; light wagon; 2 or 3 plows; 2 or 3 harrows, cultivator, mowing machine, seed drill, 6 to 10 cows, possibly a 2-horse power and thrashing machine, a corn-sheller, fodder-cutter, 2 or 3 brood sows and a boar, possibly 20 or 30 sheep; and a lot of small tools such as scythes, reaping cradles, rakes, corn-knives, shovels, hay-forks, manure-forks, etc., etc. These would cost from $2,000 to $3,000. A good outfit for an 80 or 100 acre farm could not be purchased for much less than $2,000.

Basket Items continued on page 73.

## Bee-Keeping for Everybody.

### Notes for Beginners.

BY L. C. ROOT, MOHAWK, N. Y.

[Those who make a business of bee-keeping, and count their hives by the hundred, and those who have had long experience with a small apiary, are perfectly familiar with matters that are entirely new to the novice. The keeper of bees for profit will not only have at hand the best practical work on bees as a reference and guide, but he will have all the useful literature on the subject as a part of his outfit, or stock in trade. But there are hundreds who would keep a few hives, to afford a family supply of honey, did they know how to begin, or feel that they could accomplish this without making a study of apiculture, and that there were not so many difficulties that only experts can hope to succeed with them.

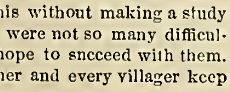


Fig. 1.

Why should not every farmer and every villager keep bees? There is an abundance of honey waiting to be gathered. But a small share of the sweets secreted by flowers is harvested, the rest going to waste. In Europe, bee-keeping is vastly more common than it is with us, and if the rude methods followed there are successful, our improved management, in the hands of our more intelligent rural population, should produce still better results. With a view to encourage the keeping of bees more generally, and knowing that a large share of the readers of the *American Agriculturist* expect to find in its pages all the instruction on rural matters that they need, we have requested Mr. L. C. Root to prepare a series of notes especially for beginners, which shall show the inexperienced how to begin and how to continue.—Eds.]—The procuring of the bees comes later in the season; the important topic at this time is the selection of

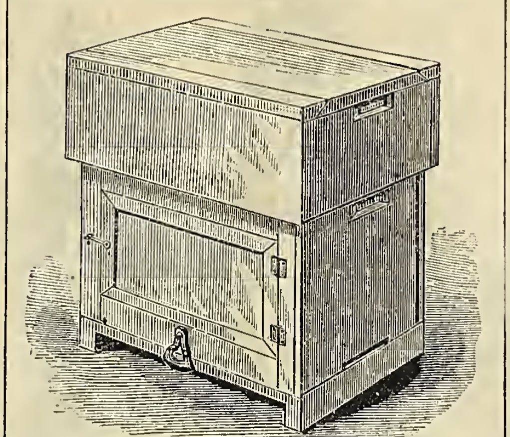


Fig. 2.—LANGSTROTH'S HANGING COMB HIVE.

THE PROPER HIVE.

Some form of movable frame hive must be adopted if bee-keeping is to be made successful or profitable. In some sections, patented hives are yet offered to the public, but I shall describe two forms of hives, which embody all that is essential to success, neither of which is justly covered by a patent. Parties desiring to make these hives may do so, and not be obliged to pay for a right to use them. It is not necessary to enumerate the advantages of the movable-comb hive over all others, they will appear in the instructions given for their use.

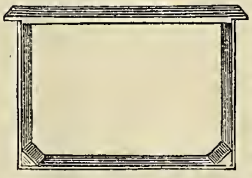


Fig. 3.—FRAME TO FIG. 2.

THE HANGING FRAME OR LANGSTROTH HIVE.

This is simple, and I have found it to be very practical in use. To make this hive, cut two pieces of board 18¾ inches long, 12 in. wide, and ⅞-in. thick. Rabbet the ends ⅞-in. wide, and ⅜-in. deep, to receive the end pieces. This will allow the corners to be nailed together from each way, making it much stronger. Next cut two pieces 12¾ in. long, 12 in. wide, and ⅞ thick. At one edge of each of these pieces rabbet one corner, so that when it stands the rabbeted side up, the corner removed will be ½-in. deep each way. Nail these four pieces together, forming a box, 17 in. long, 12 in. wide, and 12 in. high, inside, with the rabbeting at the inside of the top of the ends, for the frames to hang upon. Across the bottom of the hive, at the center, an iron piece (fig. 1) for steadying the frames at equal distances apart, should be placed. This should be let in even with the bottom of the hive. For a bottom board, cut a piece 18¾ in. long, 13¾ in. wide, and ⅞-in. thick. Cut two cleats 13¾ in. long, and 1½ in. square. Nail these on each end, with wrought nails, clinching them firmly. Cut an entrance in the bottom board, 4 in. wide, and ⅜-in. deep at the front edge, and gradually rising to the surface of the board 4 in. back. For a top, cut a board same size as bottom. Cut two cleats 12¾ in. long, 1½ in. wide, and ⅞-in thick. Nail these across the top 1 in. from the end and an equal distance from each edge, clinching all nails well. It is well to bore holes for nails in all the cleats to prevent splitting. The top and bottom are not to be fastened to the hive. For a cap to cover the top and protect the boxes, cut two pieces 19⅞ in. long, ⅞-in. thick, and wide enough to make the cap of sufficient depth to receive the boxes to be used. Rabbet the ends ⅜-in. deep and ⅞-in. wide, to receive the end pieces, in the same manner as the body of the hive. Cut two pieces same width 13⅞ in. long, and ⅞-in. thick, for ends. Cut a rabbet in one corner of each of these four pieces ⅜-in. deep each way, so that when nailed together, the rabbeting will come on the inside lower edge. This is to fit the top of the hive, and hold the cap in place. A board 19⅞ in. long, and 14⅞ in. wide, nailed upon the top, will complete the cap. A handle for the hive and cap, as shown in fig. 2, may be cut with a chisel. Fig. 2 represents this hive, only the side shows the closed door of an observatory hive. [We are obliged, for want of space, to leave the Obervatory-hive for another month. Ed.] For a frame to this hive, cut a piece 17¾ in. long, ⅞-in. wide, and ½-in. thick. At each end, ¼-in. should be cut away ⅞-in. from the end. This is the top bar of the frame. For the bottom bar, cut a strip 16 in. long, ⅞-in. wide, and ¼-in. thick. For the ends, cut two pieces 11⅛ in. long, ⅞-in. wide, and ¼-in. thick. Nail these together, as shown in fig. 3. Small blocks nailed in each corner will strengthen it. Eight frames are required for each hive.

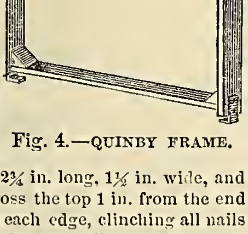


Fig. 4.—QUINBY FRAME.

THE STANDING-FRAME, OR QUINBY HIVE.

The simplest form of this hive is made with a bottom board, similar to the one described, but two inches wider. At the rear end of the bottom board, ⅜-in. from the edge, a channel should be cut one inch wide, and ⅛-in. deep. Over the front edge of this channel nail a piece of hoop-iron, projecting backward over it, to within one inch of the rear end of the bottom board. Over the entrance in front nail a piece of hoop-iron ⅞-in. from the end, upon which the frames may rest. For the ends of the frame cut two pieces 12 in. long, 1½-in. wide, and ½-in. thick. Cut the top bar 16 in. long, ⅞-in. wide, and ½-in. thick, and the bottom bar of the same size and ⅜-in. thick. Nail all together, as shown in fig. 4, with blocks in the corners to strengthen it. The top

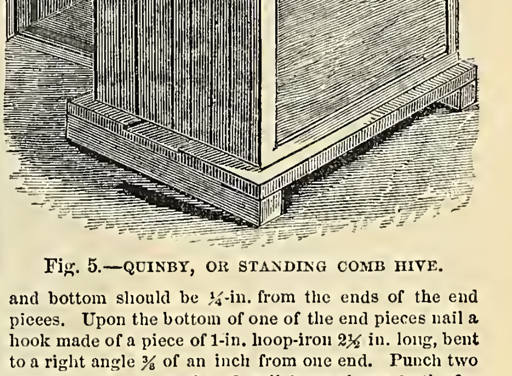


Fig. 5.—QUINBY, OR STANDING COMB HIVE.

and bottom should be ¼-in. from the ends of the end pieces. Upon the bottom of one of the end pieces nail a hook made of a piece of 1-in. hoop-iron 2½ in. long, bent to a right angle ⅜ of an inch from one end. Punch two holes in the longer end, and nail it, as shown in the figure, with ¾-in clout nails. A little space should be left between it, and the end of the frame. This will hook under the strip of hoop-iron, on the rear of the bottom board, and hold the frame in an upright position. Eight of these frames may be placed side by side. At each outside place a panel or board the size of the frame. The frames and panels, or boards, may be held together with a strong fine cord. Make a tight-fitting box or cap of proper size to fit over all, resting upon the bottom board. Fig. 5 shows this hive with the cap removed. The manner of placing boxes on this hive will be described hereafter. A detailed description and illustration of the full-sized Quinby Hive appeared in the *American Agriculturist* for January, 1876. That presents a slight difference in the size of the frames, and in the outer case.

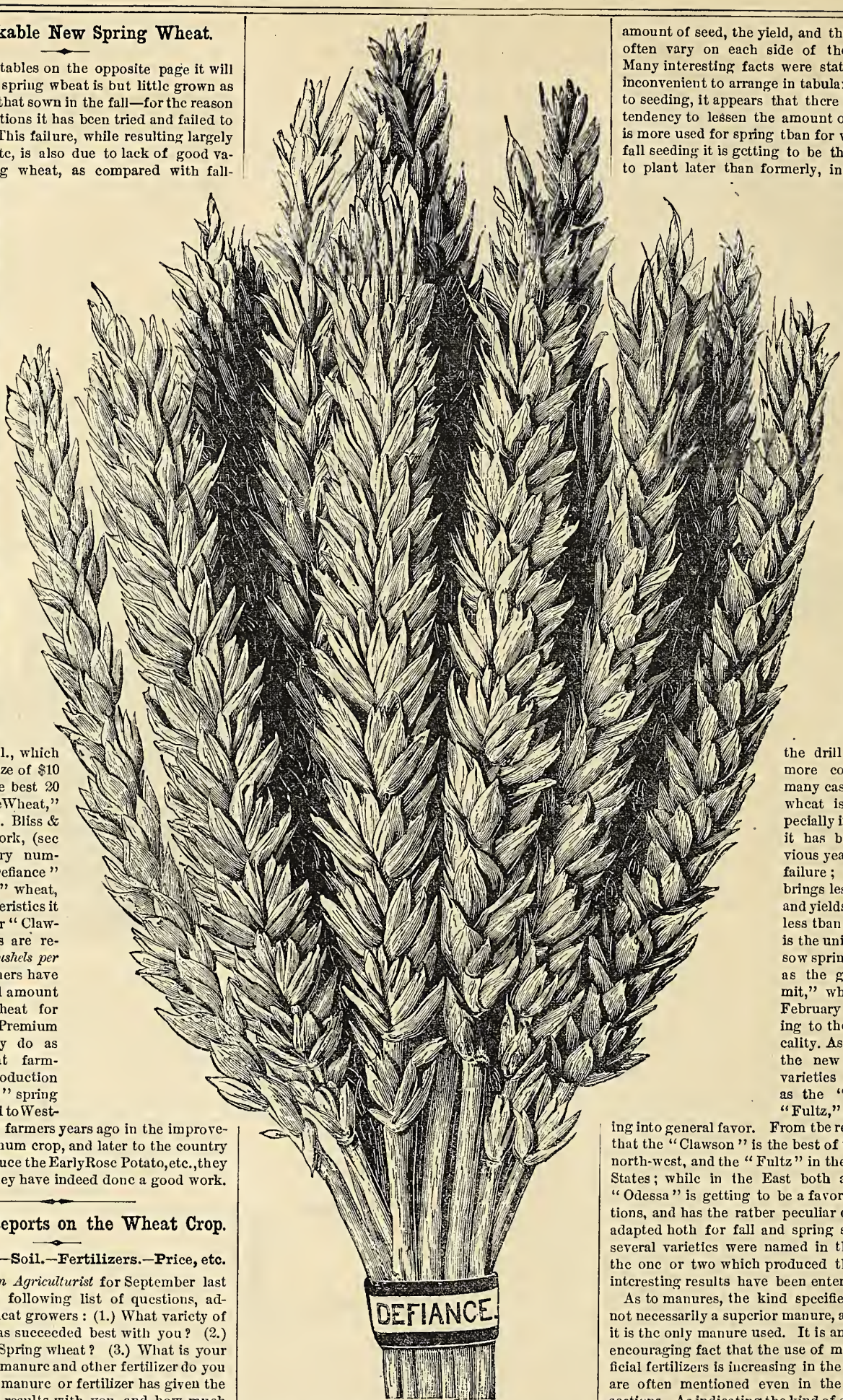
BEE NOTES—ANSWERS.

Patented Quilt.—"C. S.," of Mo., says that an agent of a Mr. Mitchell claims that the principle of placing a quilt, rags, carpeting, etc., upon the frames to absorb the moisture arising from the bees, is patented, and demands a royalty. Mr. C. asks if he is entitled to it.—I do not know anything about Mr. Mitchell's claim, but I do know that quilts are used, for the purpose mentioned, by all extensive bee-keepers, without being molested.

Swarming.—"E. W.," of Sag Harbor, N. Y., asks why his two hives of bees do not swarm.—Very probably they have done so without his knowledge. If he will adopt either of the above movable-comb hives, he will be able to ascertain the exact condition of his bees.

## A Remarkable New Spring Wheat.

In the wheat tables on the opposite page it will be noticed that spring wheat is but little grown as compared with that sown in the fall—for the reason that in many sections it has been tried and failed to be profitable. This failure, while resulting largely from the climate, is also due to lack of good varieties of spring wheat, as compared with fall-sown, most of the improvement in the seed of this great staple having been made in winter wheats. The demand among wheat-growers for a spring wheat that will pay for the growing, seems, partially at least, to have been met by the "Defiance," a fine engraving of which embellishes this page, and which we have already mentioned several times. This engraving is from an exact photograph as to size and appearance, of a bunch of heads grown by Mr. A. J. Hickerson of Greenville, Cal., which took the first prize of $10 offered for "the best 20 heads of Defiance Wheat," by Messrs. B. K. Bliss & Sons of New York, (see page 33, January number). The "Defiance" is a white "bald" wheat, in which characteristics it is like the popular "Clawson," and yields are reported of 128 *bushels per acre*. Our Publishers have procured a small amount of this prize wheat for distribution (see Premium 89), and if they do as much for wheat farmers in the introduction of the "Defiance" spring wheat, as they did to Western and Southern farmers years ago in the improvement of the sorghum crop, and later to the country by helping introduce the Early Rose Potato, etc., they may feel that they have indeed done a good work.




## Interesting Reports on the Wheat Crop.

### Best Varieties.—Soil.—Fertilizers.—Price, etc.

In the *American Agriculturist* for September last was printed the following list of questions, addressed to all wheat growers: (1.) What variety of Winter Wheat has succeeded best with you? (2.) What variety of Spring wheat? (3.) What is your soil? (4.) What manure and other fertilizer do you use? (5.) What manure or fertilizer has given the most satisfactory results with you, and how much have you used per acre where such results were obtained? (6.) How much seed per acre? (7.) What is the yield? (8.) Does the Hessian Fly or Wheat Midge trouble your crop? (9.) When do you sow winter wheat? (10.) When do you sow spring wheat? (11.) What price do you obtain per bushel?

We have condensed the responses to these questions into the table on the opposite page, arranging the States mentioned according to locality. The many reports from which this table is made up, in a large proportion of the cases, speak for the locality of the writer as well as his individual experience, and are of additional value on that account. In the table only averages are stated, though the amount of seed, the yield, and the prices obtained, often vary on each side of the figures named. Many interesting facts were stated in the letters, inconvenient to arrange in tabular form. In regard to seeding, it appears that there is a quite general tendency to lessen the amount of seed, and there is more used for spring than for winter wheat. In fall seeding it is getting to be the general custom to plant later than formerly, in order to escape the Hessian fly; when any date is stated in the table earlier than Sept. 18th, it will be seen that this insect has not yet visited that locality, and in the majority of cases where it has been troublesome it is now defeated by late sowing. The wheat midge is rarely troublesome, except in dry seasons, but then it is often very destructive, especially in the West. It is interesting to notice also, that where drilling is practised, in connection with thinner seeding, larger crops are generally obtained, and that the drill is coming into more common use. In many cases where spring wheat is not grown, especially in the north-west, it has been tried in previous years, and proved a failure; it also usually brings less in the market, and yields 25 to 50 per cent less than winter wheat. It is the universal custom to sow spring wheat as "early as the ground will permit," which varies from February to May according to the season and locality. As the table shows, the new and improved varieties of wheat, such as the "Clawson" and "Fultz," are rapidly coming into general favor. From the reports it appears that the "Clawson" is the best of these two in the north-west, and the "Fultz" in the more Southern States; while in the East both are liked. The "Odessa" is getting to be a favorite in many sections, and has the rather peculiar quality of being adapted both for fall and spring sowing. Where several varieties were named in the reports, only the one or two which produced the best or most interesting results have been entered in the table.

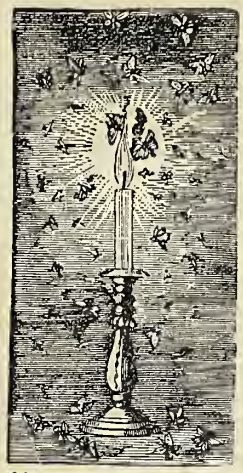
As to manures, the kind specified in the table is not necessarily a superior manure, as in many cases it is the only manure used. It is an instructive and encouraging fact that the use of manures and artificial fertilizers is increasing in the West, and they are often mentioned even in the newest settled sections. As indicating the kind of soil best adapted to wheat, the greater number of all the reports mentioned clay land, and the large crops are nearly all produced on soils where clay predominates. We are pleased to find the custom of fattening cattle to be on the increase on the grain farms of Pennsylvania, Maryland, etc., and that, as a result, these farms often produce the largest crops of wheat.

**Table showing the Favorite Varieties of Wheat in the Sections named—Best Manure used—Facts about Hessian Fly—Amount and Time of Seeding—Yield—Price—etc.**

| Name. | County and State. | Best Variety: Winter. | Best Variety: Spring. | Best Manure used | Amount of Seed. Pks | Hessian Fly. | Time of Seeding. | Yield, bushels. | Price obtained. | References to foot notes. |
|---|---|---|---|---|---|---|---|---|---|---|
| W. P. | Ontario, Can. | Clawson | Fife | Stable | 6 | little | Sept'r. 1 | 20 | $1.00 | |
| L. W. T. | Weld, Col. | none | Mexican | Irrigation | 4 | no | April | 15¼ | .60 | (1) |
| L. K. P. | Denver, Col. | Blue Stem | California | 10 tons Stable | 4 | no | | 30 | .65 | (2) |
| J. S. P. | Benton, Oregon | | | none | 5 | no | | | .80 | (21) |
| J. M. G. | Linn, Oregon | Sonosa | none | do. | 6 | no | | 29 | .75 | (21) |
| J. C. | Wahsutch, Utah | Clawson | Toas & Medit'n. | Stable | 5 | no | Sept'r | 23 | .87 | (23) |
| W. E. P. | Logan, Utah | none | Toas and Club | do | 5 | no | early | 40 | .75 | |
| M. D. | Greeley, Neb. | Odessa | Med'n & Odessa | do. | 5 | no | Sept'r. 28 | 20 | .80 | |
| J. McD. | Cumming, Neb. | none | Fife | Scattered Straw | 6 | no | March | 15 | .75 | |
| F. S. G. | Plymouth, Neb. | none | Odessa | none | 6 | no | March | 8 | .55 | |
| J. M. | Bear Lake, I. Ter. | none | Toas | Stable | 6 | no | April | 22 | .90 | |
| F. P. | Ottawa, Kansas | May | ? | none | 6 | no | Sept'r. 10 | 40 | .90 | (3) |
| A. M. | ? do. | do. | failure | Stable | 5 | no | Sept'r. 10 | 20 | .75 | |
| H. A. L. | ? do. | do. | do | none | 5 | no | Sept'r. 10 | 40 | .40 | (4) |
| O. L. R. | Jewell, do. | do. | Odessa | do. | 5 | no | Sept'r. 1 | 15 | .75 | |
| F. B. H. | Morris, do | do | do. | do. | 6 | no | Sept'r. 5 | 20 | .65 | (5) |
| T. N. | Sumner, do | do. | none | Stable | 5 | no | Sept'r. | 15 | .61 | (6) |
| A. Z. | Douglas, do. | May and Clawson | do | none | 5 | yes | Sept'r. | 25 | 1.00 | |
| E. E. | Oskaloosa, Ia. | Toas | Lea | Stable | 6 | no | Sept'r. 5 | 22 | .70 | |
| A. N. | Lyon, Minn | none | Fife | Scattered Straw | 6 | no | April | 20 | .50 | (15) |
| R. B. C. | Yellow Mud, do. | none | do. | Stable | 6 | no | April | 20 | .55 | (15) |
| H. A. | Chippewa, do. | none | do | Scattered Straw | 6 | no | April | 15 | .90 | |
| E. W. | Genesee, Mich. | Delhi | none | Stable and Plaster | 6 | yes | Sept'r. 10 | 30 | 1.00 | (12) |
| L. K. | Ottawa, do. | Clawson | do. | Stable | 6 | no | Sept'r. 1 | 23 | 1.25 | |
| C. V. Z. | do. do. | do. | do. | Stable and Plaster | — | no | Sept'r. 15 | 20 | 1.00 | |
| P. O. C. | do. do. | do. | do. | Stable and Clover | 8 | yes | Sept'r. 5 | 30 | 1.00 | |
| F. S. S. | Kalamazoo, do. | do. | do. | do. do. | 8 | yes | Sept'r. 15 | 25 | .95 | (13) |
| D. A. M. | Kent, do. | do | do. | do. do. | 5 | yes | Sept'r. 10 | 26 | .90 | |
| L. C. | Micosta, do | do. | Odessa | do. do. | 6 | no | Sept'r. 10 | 22 | 1.05 | |
| E. N. B. | Allegan, do | do. | none | Stable | 5 | no | Sept'r. 1 | 30 | .95 | |
| W. H. H. | Ingham, do | do | do. | do. | 7 | yes | Sept'r. 15 | 25 | .90 | |
| C. A. J. | Lenawee, do | Jennings | do. | do. | 6 | yes | Sept'r. 15 | 26 | 1.00 | |
| G. E. L. | Eaton do | Clawson | do. | do. | 6 | yes | Sept'r. 10 | 28 | 1.00 | (14) |
| F. J. G. | Lapler, do | do. | do. | Superphosphate | 7 | no | Sept'r 15 | 32 | 1.00 | |
| G. A. W. | Muskegan, do. | do. | do. | Stable and Plaster | 7 | no | Sept'r. 10 | 25 | 1.25 | |
| F. M. S. | Dunn, Wis | none | Odessa | none | 5 | no | | 10 | .68 | |
| D. N. | Shawano, do. | Delhi | do. | Stable and Plaster | 6 | no | Sept'r. | 23 | .82 | |
| J. C. | Vernon, do | do. | failure | Clover Sod | 6 | yes | Sept'r. 1 | 21 | 1.00 | |
| W. A. H. | ? Ill. | Crow and May | none | do. | 5 | yes | Sept'r. 25 | 18 | .90 | |
| J. T. L. | Moultin, do. | May | do. | Stable | 6 | yes | Sept'r. 5 | 15 | .78 | (16) |
| A. D. R. | Iroquois, do. | Mediterranean | | none | 6 | no | Sept'r. 15 | 15 | .83 | (17) |
| W. M. J. | Randolph, do. | May | none | do. | 4 | no | Octo'r. 1 | 18 | .85 | |
| I. C. | Adams do. | Clawson | do. | Clover Sod | 5 | no | Sept'r. 15 | 25 | 1.00 | |
| J. F. C. | Macoupin, do. | Fultz | do. | none | 5 | no | Sept'r. 15 | 20 | .80 | |
| H. A. H. | Hancock, do. | Oregon | do. | Clover Sod | 6 | yes | Sept'r. 15 | 15 | 1.15 | |
| E. M. | Scott, do. | Fultz | do. | none | 5 | yes | Sept'r. 22 | 25 | .95 | |
| J. C. B. | Jersey, do. | do. | do. | Clover Sod | 5 | no | Octo'r. 1 | 17 | .82 | |
| J. B. | McDonough, do. | Lancaster & Fultz | Odessa | none | 5 | no | Sept'r. 10 | 21 | .75 | |
| G. L. G. | Decatur, Ind. | Fultz | none | Stable and Clover | 5 | no | Sept'r. 10 | 28 | .85 | (18) |
| C. S. | Dubois, do. | Mediterranean | do. | Summer Fallow | 6 | | | 17 | — | |
| J. E. T. | Crawford, do. | do. | do. | Clover Sod | 6 | yes | Sept'r. 15 | 17 | .85 | |
| S. M. M. | Gibson, do. | Fultz | do. | do. | 5 | yes | Octo'r. 1 | 25 | .80 | |
| A. W. B. | St. Joseph, do. | Fultz and Clawson | do. | do. | 5 | yes | Sept'r. 10 | 17½ | .93 | |
| B. A. B. | Clark, do. | Bearded Amber | do. | Bone Dnst | 5 | yes | Sept'r. 25 | 26 | .98 | |
| W. P. S. | Guernsey, Ohio | Clawson and Fultz | do. | none | 6 | yes | Sept'r. 15 | 25 | .95 | |
| O. S. F. | Huron, do. | Lancaster | do. | Stable | 7 | no | Sept'r. 15 | 21½ | .85 | |
| C. W. R. | do do. | Clawson | do. | do. | 6 | yes | Sept'r. 10 | 15 | .90 | |
| W. I. C. | Champalgn, do | Mediterranean | do. | do. | 6 | yes | Sept'r. 15 | 15 | .90 | |
| C. B. | Portage, do. | Tod | do. | Stable and Plaster | 5 | yes | Sept'r. 15 | 20 | .95 | |
| R. E. G. | Belmont, do. | Fultz | do. | Stable | 5 | yes | Sept'r. 25 | 30 | .85 | |
| W. A. L. | Gallia, do. | California | do. | Compost | 4 | yes | Sept'r. 25 | 19½ | .95 | (20) |
| D. W. L. | Columbiana, do | Michigan Amber | do. | do. | 5 | yes | Sept'r 20 | 23 | .90 | |
| W. A. | Green, Mo. | Walker | do. | Summer Fallow | 5 | yes | Sept'r. 25 | 13 | .65 | |
| D. F. C. | Weakly, Tenn. | Fultz | do. | none | 4 | yes | Octo'r. | 16 | .80 | (22) |
| O. B. | Boyle, Kentucky | Odessa | do. | do. | 5 | yes | Sept'r. | 15 | .90 | (7) |
| A. P. L. | Bourbon, do. | Tappahannock | do. | do. | 5 | yes | Sept'r. | 20 | 1.00 | |
| J. J. S. | Wayne, do | do. | do. | Stable | 4 | yes | Octo'r. | 10 | .90 | (8) |
| J. F. P. | Cawline, Va. | Bearded Amber | do. | Guano and Clover | 4½ | yes | Octo'r. | 18 | — | (24) |
| B. F. H. | Washington, Md. | Fultz | do. | Superphosphate | 7 | yes | Sept'r. 25 | 15 | .95 | |
| A. C. W. | do. do. | Amber | do. | Stable | 5 | yes | Sept'r. 25 | 14 | .95 | |
| W. C. | Talbot, do. | Lancaster | do. | 200 lbs. Guano | 6 | yes | Octo'r. 10 | 18 | 1.05 | |
| J. M. B. | Cecil, do. | Mediterranean | do. | Compost & Clov'r | 6 | yes | Octo'r. 10 | 31½ | 1.00 | (9) |
| W. A. R. | Kent, do. | Fultz | do. | Superphosphate | 5 | yes | Octo'r. 1 | 19 | 1.00 | |
| J. B. | Howard, do. | do. | do. | Compost | 6 | yes | Octo'r. 1 | 29 | 1.05 | (10) |
| S. D. Y. | Garrett do. | do. | do. | | 5 | | Sept'r 1 | 38 | 2.00 | (11) |
| W. A. D. | North'mber'd, Pa. | Clawson | do. | Stable and Ashes | 7 | yes | Sept'r. 20 | 20 | 1.00 | |
| W. D. L. | Westmorel'd, do. | Fultz | do. | Stable and Lime | 6 | yes | Sept'r. 10 | 28 | 1.00 | |
| J. T. M. | do. do. | do. | do. | do. do. | 7 | yes | Sept'r. 15 | 18 | .90 | |
| E. Bros. | Beaver, do. | Clawson | do. | Stable and Bone | 6 | yes | Sept'r. 15 | 27 | — | |
| G. R. | York, do. | Fultz | do. | Stable and Lime | 7 | yes | Sept'r. 10 | 28 | 1.00 | |
| W. H. B. | do. do. | do. | do. | do. do. | 6 | yes | Sept'r. 10 | 25 | 1.00 | |
| W. K. | do. do. | do. | do. | Stable | 8 | yes | Sept'r. 15 | 27 | 1.00 | |
| H. A. | Dauphin, do. | Fultz and Clawson | do. | do. | 6 | no | Sept'r. 20 | 20 | .95 | |
| J. H. F. | Mifflin, do. | Fultz | do. | do. | 6 | no | Sept'r. 5 | 32 | .90 | |
| J. H. B. | Clearfield, do. | do. | do. | do. | 5 | no | Sept'r. 10 | 25 | 1.40 | (25) |
| A. N. C. | Centre, do. | do. | do. | Stable and Lime | 6 | no | Sept'r. 5 | 20 | .90 | |
| E. H. | Berks, do. | Blue Stem & Claw'n | do. | Guano | 8 | yes | Sept'r. | 19 | .95 | |
| J. C. S. | Somerset, do. | Fultz | do. | Stable and Lime | 6 | no | Aug't. 20 | 25 | 1.00 | |
| K. P. P. | Niagara, N. Y. | Clawson | do. | Stable | 7 | no | Sept'r. 10 | 31 | 1.05 | |
| A. W. M. | Madison, do. | do. | failure | Compost | 8 | no | Aug't. 25 | 28 | 1.00 | |
| P. B. P. | Dutchess do. | do. | none | Stable | 8 | no | Sept'r. 10 | 25 | 1.50 | (19) |
| E. C. L. | Erie. do. | do. | do. | Compost | 8 | no | Sept'r. 5 | 30 | 1.00 | |
| J. P. F. | Wayne, do. | do. | do. | Stable | 8 | yes | Sept'r. 15 | 30 | 1.00 | |
| H. M. | Munroe, do. | do. | do. | Superphosphate | 7 | yes | Sept'r. 15 | 26 | 1.00 | |
| J. C. W. | Yates, do. | do. | Club | do. | 8 | yes | Sept'r. 15 | 20 | 1.03 | |

(1.) 30 bushels last year, price $1.00, Australian wheat best.—(2.) Winter wheat in drills and cultivated.—(3.) 6 pks. seed broadcast, or 5 drilled; these are highest yields; best yield on ridges.—(4.) Price, 40 cts. at home, 60 cts. at market 75 miles distant.—(5.) Fultz coming into notice; Chintz bug sometimes troublesome.—(6.) Time of sowing from September 1 to last of November.—(7.) Yield for broadcast sowing 10 to 12 bushels, for drilling 15 to 18.—(8.) Hessian fly bad when sown early.—(9.) 30 acres corn ground dressed with 200 lbs. superphosphate, yielded 21½ bush. Fultz; similar land in Red Mediterranean yielded 19½ bush. per acre; 16 acres clover sod without manure gave 31½ bush. Red Mediterranean.—(10.) 400 lbs. per acre of compost, 4 parts dissolved bone ash, 6 dissolved raw bone, 4 of Lobos guano, 2 parts wood ashes; this gave above yield, which previously was only 15 to 20 bushels per acre; seed drilled in; Fultz better than Clawson.—(11.) Stable-manure in spring, summer fallow, 200 bushels lime per acre in August; sold for seed; weighed 66 lbs. per bushel.—(12.) Yield 15 to 40 bushels according to *season*.—(13.) Variety called "Wagner," derived by selection from the Clawson, did extra well; the large seeding (2 bushels) is because the kernels were so large, and the Clawson stools or tillers but little.—(14.) Drilled.—(15.) Poor quality last year.—(16.) Neighbors raise 28 bushels Fultz wheat per acre.—(17.) Chintz bug in dry years; virgin sod broken up in spring, plowed again in fall and left rough, best for fall wheat.—(18.) "Velvet" wheat sown in previous years, yielded, under same treatment, only 10 to 18 bushels.—(19.) Sold for seed.—(20.) When took farm 9 years ago only yielded 6 to 9 bushels per acre; have brought it up by use of manures.—(21.) Australian (winter and spring), "Red Chaff Club" (spring) and "Big Goos" (spring), best 3 varieties; last yielded 41 bushels, samples received measure ⅛ inch; sow winter wheat from September to January; spring from February to May 20.—(22.) Has run thrashing machine for 20 years; last year poorest wheat year ever known.—(23.) Plows wheat in 3 to 4 inches deep after peas.—(24.) Last year got 33 bushels per acre on 45 acres.—(25.) This was sold for seed.

## Sundry Humbugs.



Well, here is trouble! One man, as a general thing, isn't of much consequence in the world. Men, even the most distinguished, depart, yet somehow the terrestrial ball manages to wobble along on its axle-tree, and we have day and night, and processions of the equinoxes, and seasons, and things, without them. But there are men and men. Some men are only linch-pins and keep but one of the small wheels of the universe in place. Other men are king-pins, and when the king pin breaks, the whole universal go-cart smashes into smithereens. We are not at all sure but this metaphor is getting mixed, but not having met-a-fore just such a cataclysm, we are, so to speak, somewhat taken aback. We would break the news gently, and yet with all the solemnity that the subject demands. We had thought of turning the rules and putting the column in mourning, but that is only done for those who are actually dead, and we are very sure that he is worth several dead persons. We might put the emblematic rooster in place of the candle, but for scruples against crowing over the misfortunes of others. In fact we feel sadly over the matter. The Humbug Column is losing its interest for us. We had set our heart on Eddie Eastman with his sufferings and his scars, but he walked in one day as spruce a young fellow as any on Broadway. Then there was dear old Mother Noble, we had such an affection for the benevolent old soul, but she came in with such ronsing big diamonds in *his* shirt-bosom, and the well-fed fellow talked at us in a way that made us feel like the child who found her doll was stuffed with sawdust—but now comes the hardest blow of all,

ELIAS HAS FAILED!!!!!!!!!!!

Or, to be historically accurate, for there are two of him, the Eliases have failed, bankrupted, assignmented. It is not that we care so much for the Elias Brothers, but with them go Russell & Co., and Hetherington & Co., and Clark & Co., those amiable adjusters, then Elgin & Co., and the Silver something Mining Co., and Hopping & Co., and Mr. Skeeps, and the Milton Gold Jewelry, and the Kingston Gold Jewelry, and we don't know how many more. There was a mistake in a vowel when the Eliases were named, *A*-lias would have been much nearer the proper name, for the above are only a part of the many forms in which the Eliases have appeared in this column from time to time. Whether this failure will put an end to those nice little letters, beginning, "is this your signature?" and all the rest of their operations, we very much doubt. We predict that this assignment will prove to be a part of some new scheme, and that we have not heard the last of the Eliases and their Aliases.

THE LOTTERY BUSINESS,

bad enough in itself, seems to be the cause of a great deal of rascality in others. There seems, by the way, to be quite a lively time in the Dominion in the lottery business; probably the scamps finding that our Post Office gives them too much trouble, send their schemes from New Brunswick and other places. One C. B Haines is trying to make something out of lotteries. Haines writes very pretty letters, but he sometimes makes a mistake in directing them. It is a pity to waste such a nice letter as this on a small boy who does not know what a lottery ticket is, much less doos he "sometimes buy Lottery Tickets."

C. B. HAINES HAS A FRIEND,

and a very *dear* friend he seems to be from C. B.'s letters. Haines writes from New York to people all over the country, as follows:

*Dear Sir.*—Knowing that you sometimes buy Lottery tickets, I have a confidential proposition to make to you by which we can realize from $5,000 to $10,000. I have a friend who is Confidential Clerk in the office, and, if well paid, can arrange the matter, so success will be sure. The only expense on your part would be, you would have to remit to the head office and buy a whole or part of a ticket. Whole Ticket, $40; Half, $20; Quarter, $10. Less than one-quarter would not justify us in the undertaking. It will take all the money I can spare, to arrange with my friend. If you agree to this, and will give me one-half of the prize, inform me at once.

Yours truly, C. B. HAINES."

Of conrse the name of the lottery and the "head office" is not meutioned. It may be that there are some people green enough to send Haines the money to buy the ticket with, bnt we have heard from a good many who didn't.

PIANOS VERY CHEAP.

Circulars are freely distributed by a concern calling itself the Bristol Piano Company, and it proposes to give

away a piano—in fact, a piano with "ornamented legs." All any person has to do is to send the "names of 20 persons in their locality who have no instrument, either Piano or Organ, and who you think would be liable to purchase a piano."—This Company, on the receipt of them names, *and* "$2.25 to cover boxing, packing," etc., will send a piano with "ornamented legs." The "Company" publish the note of Miss Mary E. Kendall, of Rome, N. Y., acknowledging the receipt of a piano on those easy terms. There are people so foolish as to inquire into the matter, and as a consequence there is, according to the Rome papers, a wonderful accumulation of letters and postal cards at the Rome P. O. These letters are not answered or even taken from the P. O., owing to the fact that no such person lives at Rome. This Piano offer is good for 30 days, but the document does not happen to be dated....Here is a batch of documents that makes it necessary for us to have a little

PLAIN TALK WITH A KENTUCKY POSTMASTER.

As we mention neither name nor place he will see that we do it in all kindness, in the hope of saving him, and others who are similarly tempted, from falling into the hands of sharpers and swindlers. The case as it would appear from the Postmaster's letter, stands thus: Henry P. Jones, that man who has lost so much cousin, wishes the Postmaster to act as agent for the sale of his, Jones', lottery tickets. Jones sends Postmaster a ticket as a sample, in fact as a gift. Postmaster is in due time informed that his ticket has drawn a "Gold Watch and Chain, valued at $300," and is also notified by the *other chap*—there is always *another* who attends to details—that: "The percentage due for packing, postage, registering, and shipping, is $3.00, which must be paid before the goods are shipped."—Why "postage" and "registering" if "the goods are shipped," or why charge for "shipping" if goods are sent by "postage," is a problem that we will not now try to unravel. But Ky. Postmaster has read in the *American Agriculturist* about

JONES AND HIS BEREAVEMENT.

He probably thinks that a man who has lost a whole Directory (U. S. Directory at that) full of cousins, might not be in a proper state of mind for business, so he, Postmaster, writes us that if we will go and get this "$300.00 Gold Watch and Chain," he will not only remit us the $3.00 for "percentage" and things, but will pay us well besides. That our course to accomplish this may he clear, Postmaster sends us the various letters of Jones and his associates, that we may have a knowledge of the whole transaction. Our Postmaster seems to be acting in such good faith himself, that he fails to see through the rascality of the whole transaction. This case leads us to ask:

ARE POSTMASTERS INSTRUCTED AS TO THEIR DUTIES?

Are they informed as to the laws of the Department? Evidently *this* Postmaster is not aware that there is a law forbidding such circulars as he has received from going through the mails at all, yet he not only receives these circulars in his official capacity, but actually entertains a proposition to become an agent for the sale of lottery tickets, as he writes us "I could sell about 50 tickets if it was a reliable house."—Surely if he knew the law, this Postmaster could not so openly violate it, and we have doubts if Postmasters in small places generally, are properly informed as to the postal laws in this and other respects. We need only say in short, to this and all other such propositions, that holding lotteries of whatever style and name, to be

EITHER GIGANTIC OR VERY MEAN FRAUDS,

we can have nothing whatever to do in aiding or abetting those who invest in them, in any manner whatever. We wish to call attention to this particular case as a typical illustration of two things—Firstly,

THE ESSENTIALLY FRAUDULENT CHARACTER

of all lotteries, especially those that are called "Gift Distributions," "Drawings of Jewelry," or by whatever the name the swindle may be called, and secondly, to

THE SHORT-SIGHTEDNESS OF THOSE WHO ARE TEMPTED

by the offers of the managers of these schemes. Take our Kentucky Postmaster for an example. We have no doubt that in all ordinary affairs he is clear-sighted, a man of good judgment, and fairly shrewd in business matters. He is by no means the only one who is blinded by the idea of getting something for nothing, and this is one of the very curious features of this whole lottery business—that its victims become infatuated, as if they had partaken "of the insane root, that takes the reason prisoner." All coolness of judgment, all ordinary business shrewdness, seem to give way before the glittering schemes. "Great prizes are offered. Prizes to be distributed by chance. My chance is as good as any," seems to be the thought, and all details, all the ways and means are lost sight of in the glitter of the temptation. In the present case the idea of getting a "$300 gold watch and chain," has completely blinded the Postmaster to

THE RASCALITY OF H. P. JONES.

Jones acknowledges Postmaster's letter on Dec. 19th, and writes him:—"The drawing takes place to-day; *I have so arranged* that your ticket will draw a prize." Could any one not blinded by the glitter of a prize fail to see that he was becoming partner in a fraud? Postmaster learns that he has drawn—Jones having "so arranged," "a gold watch and chain valued at $300.00," and his whole thought is turned to getting that watch and chain, without any consideration as to the ways and means by which it was "so arranged." Delighted at his own success, Postmaster thinks he "could sell 50 tickets if it was a reliable house." So blinded is he by this "watch and chain," that though an officer of the Government of the United States, he is willing to sell tickets to his neighbors, "if"—he has not lost all sense of propriety and is yet cautious—"*if* it was a reliable house." We have no doubt of the *re-lie-ability*. It is just as

RELIABLE TO CHEAT OTHERS OUT

of a prize as it was *reliable* to cheat you into one. Say, Mr. Postmaster, don't you see that this kind of a Lottery is a double-ender, and hits both ways? If Jones, who "so arranged" that *your* ticket drew a watch, should in his despair at the loss of many thousands of cousins, "so arrange" that every ticket of those fifty that you think you could sell, should draw *just nothing*—don't you see that you would be a party to a very mean swindle?—We have gone into this case in some detail, as it is typical of many that come to our notice. We advise our Postmaster, and all others, to have nothing to do with

ANY LOTTERY, GIFT ENTERPRISE, JEWELRY DISTRIBUTION,

or whatever name it may bear, or for whatever purpose it may claim to benefit; every one, whether managed by Southern Generals, or poor cousinless Jones, has a rotten spot in it somewhere. The only difference in them is, in the degree of rottenness. As for Jones—this case with the Ky. Postmaster is by no means the only one of the kind—we have *numerous* other letters where he announces that he has "so arranged" that a particular ticket will draw a particular prize, and somehow it always happens to be "a gold watch and chain valued at $300.00." Jones, you are a great "arranger"—but why don't you "arrange" to find your cousin?....Spring approaches,

AND LET FARMERS BE ON THEIR GUARD!

If every farmer in the land could read, and *profit by*, the accounts we have given during the past year only, of the various special frauds upon farmers, it would, in the aggregate, be a saving of hundreds of thousands of dollars to the farming community. There is a set of swindlers whose operations are

ESPECIALLY DIRECTED TOWARDS FARMERS.

It is no reflection upon the intelligence of farmers that this is so. These rascals know that all kinds of fish are not to be caught with one bait; hence they operate upon clergymen, doctors, merchants, and farmers, each in a different manner. It is safe to predict that there is a new set of traps ready this spring to catch farmers. Of late years the "agency" dodge has been played successfully, and it has already been started thus early in the season. These swindles are all after one pattern. A glib-tongued chap, No. 1, wishes to establish an "agency" for some crinkum. It may be a stump-puller, a machine for grinding the knives of mowing machines, it may be a churn power, or a spring bed. Whatever it is, chap No. 1, somehow, or in some way, contrives to *get the signature* of the farmer. Here is where the trouble begins. We have cautioned and reiterated the caution:

"FARMERS BE CAREFUL WHAT YOU SIGN,"

but this does not seem to be enough; no matter how much care is exercised, the smooth-tongued chap, No. 1, is usually too much for the farmer. So we say to farmers—*don't act as agents* for anything, but if you *will* not heed this, and the temptation as to profit is too great to resist, and you *will* disregard warnings, we beg of you

FARMERS, DON'T **sign** ANYTHING.

You may be asked to agree to become an agent, you may be asked to give your address, so that the sample machine, to be sent free, will come all right; you may be asked for merely your post-office address. Take our advice—which is the same as Punch's advice to young people about to marry—

DON'T! DON'T!!

Don't, do not—pray refrain from *signing your name to anything whatever*. Observe this and you are safe. Sign your name on any pretence to *anything whatever*, and you open the way for the visit of chap No. 2. He is not smooth-tongued or persuasive. He has come to *collect his bill*. You have ordered so and so. The goods are at the depot, here is the bill, and he wants the money, as he must take next train. Don't say that you never ordered the goods, for *there is your signature!* You can't deny it, but you signed it as an agreement to act as agent, or signed it as your address—No. 2, knows nothing about this—cares nothing about it, but wants his money. Here we again say, *don't*. Don't be bullied into paying it, but let him do his worst. Show him the door, and let him appeal to the courts *if he dares*. The game has already begun, and hundreds of farmers, to avoid *trouble*, will throw away thousands of dollars the coming season.

DON'T BE BULLIED

into paying a dollar on any such claim. At the most, it can only go to a jury of your neighbors to decide, but not one case in a hundred will ever come to that....One correspondent in writing from Massachusetts, says that some of his neighbors think that an agricultural paper can teach them nothing, yet one of these very conceited farmers had to pay $30, which he would have saved, had he read our humbug articles, as the very swindle was exposed here....There has not been a month in a long time,

IN WHICH MEDICAL MATTERS

presented so little of novelty as at present. We look for "spring styles" in the way of cures, as regularly as in fashions of dress, but it is perhaps too early....The very last letter in our budget, is a seriously funny one. The writer—we resist the temptation to give his name and address—says: "I know that your valuable paper exposes all of these humbugs. I am not a subscriber at present, as *I do not feel able to be a subscriber*. Will you please let me know about the above concern, and greatly oblige, etc." Here is a man who does

"NOT FEEL ABLE TO BE A SUBSCRIBER."

Does he wish to know about fertilizers?—would he have our advice about a new seed corn, or wheat, or other grain?—would he learn which plow or harrow is the best for his money, that he should ask about the "above concern?"—not a bit of it. This *poor fellow*, "not able to be a subscriber," has money to invest, and asks about a "concern"—and that concern is one of

THE WALL ST. STOCK GAMBLING CONCERNS!

Those chaps that are flooding the country with their pernicious circulars, and turning the heads of honest people with hope of gain in some other way than from downright honest work. What earthly interest can a man, so far reduced in poverty that he "does not feel able to be a subscriber" to the *American Agriculturist*, have in any Wall Street concern? He has no more to do with such things than he has with the price of diamond necklaces, or the cost of board at the Grand Hotel at Paris.

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**"Farm Implements and Machinery."**—Being called upon to advise a young man, who is to go upon a farm next spring to learn farming, as to what books he might profitably study during the present winter, one of the three works recommended was "Farm Implements and Machinery," by John J. Thomas. We did not advise this work in order that the young man might learn which were the newest reapers and mowers, the most recent hay-fork, or the most rapid feed-cutter or corn-sheller. Upon the farm where the young man will go, he will see all the best implements and machines, and he will learn more about their structure and differences from a few days working with them, than many volumes could teach. We advised the work that he might learn something of more importance than a knowledge of *machines*; it was that he might learn about *machinery*. In other words, the principles that underlie the making of, and the use of, every mechanical appliance of the farm. Every farm implement or machine, from a spade to a mowing-machine, is to *do* something—is to overcome something. Every intelligent person should know what is the thing to be overcome, and why a particular machine will overcome it. Not only is every implement and machine to do something, but it must do it according to certain invariable laws. A multiplication of parts, an accumulation of levers, wheels, etc., does not *create* power. It is only as each part is placed to do its work according to established principles, that the whole machine becomes effective. It is because this work teaches these principles—matters which should be taught in every public school, but are not, that we placed so high an estimate upon our friend Thomas' work. A careful study of this work is not only to be commended to young men just about to begin farm life, but to older persons, who will find in it that explanation of natural laws, and the application of these laws, which should be familiar to—of all other people in the world—the farmer. While we do not underrate its utility in describing the most recent of the various farm machines, we place of still higher value, its teachings of the principles upon which all machines operate. The new edition, here referred to, has been carefully revised by the author, who has added many pages of new matter in order to bring it up to the present time. This new and enlarged edition, from the press of the Orange Judd Company, 245 Broadway, N. Y., with many new illustrations, will shortly be ready. Price $1.50 by mail, post-paid.

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**A Butter Carrier.**—"W. W. B.," Orange Co., N. Y. A butter tub with ice chambers for pound packages, was described and illustrated in the *American Agriculturist* for June, 1877. Since then, many of our readers, who have used it, have expressed themselves as much pleased with it. It will contain 40 one pound prints.

## Editorial Correspondence From the Far West.

### Protection for Border Settlers.

The people in the far Western States and Territories take a vital interest in the question now pending at Washington as to the disposition and management of the Indians. So far as my observations extend, the opinion is all but unanimous among them, that the War Department should be vested with the control of the Indians. While it is difficult to know how many grains of truth there are in the declarations put forth on both sides, I am thoroughly satisfied that several tribes on the reservations have been treated in the most shameful manner by agents and contractors. There is little or no doubt of this. At the same time, while the Indians may have received bad treatment at the hands of the Government agents, and been fully warranted in breaking away from the reservations, there is no justification or shadow of excuse for the horrible excesses which the Cheyennes perpetrated during their recent flight from the Indian Territory through Kansas and Nebraska. I have passed over a considerable portion of their trail, and language fails to describe the outrages of which they were guilty. With the present small number of troops scattered through the western country, there is no guarantee against a repetition of these Indian raids; and there is now a feeling of insecurity in Western Kansas and Nebraska, and Eastern Colorado and Wyoming, lest the redskins may at any time break forth afresh from their reservations and start northward, or wherever their inclination may lead them. Congress owes it to these pioneer settlers to immediately afford them the needed protection and security, by furnishing a sufficient number of men to guard the country. It is idle to talk about ample protection being afforded with the few hundred soldiers which are now quartered at the different posts remote from one another. With so few troops, and no better management of them, there is no reason why another band of discontented Indians should not decamp from the Indian Territory and suddenly sweep down on the frontier settlements. In the month of October I met in Kansas a most estimable Christian gentleman from Poughkeepsie, N. Y., who was on his way to the Indian Territory to ascertain for himself whether it was true or not true that the Indians were being poorly fed and otherwise very badly cared for. I have now met him again returning home, and he assures me that the stories of wrong-doing, on the part of the Indian agents have not been at all exaggerated. Among the Modocs and other tribes which he visited, he found that wretched flour had been palmed off on the Indians; that there was a scarcity of good food, and a considerable mortality therefrom, and that the Indians are very much discontented because of their ill treatment generally. Several instances were narrated to him of actual starvation, and he proposes making them known to the Government and the public. The stock growers in Western and Southern Kansas, and Eastern Colorado and Nebraska, are well aware of this condition of things on the reservations, and they justly demand that the Government provide them with sufficient troops as a safeguard against the evil results which may follow from this mismanagement. They furthermore demand that the different operations of officers who had charge of affairs during the recent raid of the Cheyennes be investigated.

### Military Mismanagement.

I was in the vicinity of Ogalalla, Neb., when the red warriors crossed the Platte River, at that point. I was also there a few hours later when Thornburg's command from Sidney joined in the pursuit. The whole management of the troops was characterized by a succession of blunders, and all the civilians in this region of country are wondering that a court-martial has not been held before this time to fix the responsibility for the mismanagement, and to punish the offenders. It was no thanks to the officers that all the stock-growers, together with their families, cattle, and sheep were not killed or driven out of the country. As it was, many of them suffered death, and others sought safety in flight leaving their cattle to be butchered by the Indians. Congress will certainly commit a great wrong if it does not take immediate steps to protect this western region from any fresh Indian incursions. West from Sidney, as far as Utah Territory, there is a feeling of security along the line of the Union Pacific Railroad against Indian forays, inasmuch as there is an almost continuous chain of forts, stockades and ranches through the country to the north. Hostile Indians could not approach the road without first striking these outposts, when an alarm would be sounded along the entire line.

### Desperadoes in Wyoming Territory.

More troops however are required through this region of country, because, owing to the hard times and other causes, there are more desperadoes at the present time in Wyoming than ever before. I have at one time or another during my tour, seen several of these outlaws who had been captured, and I must say that they are the most desperate looking men to be met with. The majority of them are principally from Missouri and adjoining States; some come from the Eastern States. One was formerly a preacher in New Jersey, who, after shooting the unworthy lover of his sister, fled from justice to Wyoming, and eventually became a highwayman. These robbers generally live together in bands of fifteen or twenty, and have a rendezvous in the foot-hills north or south of the railroad. From their hiding-places they saunter out in bands of five, ten, or fifteen, according to the work on hand, to attack the Black Hill's lines of coaches, plunder the ranches and post stores, run off horses, or to ditch a railway train, and rob the passengers.

### Ditching Railway Trains.

During the month of September, a band of these deperadoes, having their lair in Elk Mountain, not far from Rock Creek, planned the destruction of a train on the Union Pacific and the capture of the specie *en route* from California. The success attending the Big Spring robbery last year, near Ogalalla, apparently led to this and similar attempts. I was on the road when this last plot to ditch a train was defeated by a good stroke of fortune. A freight-train preceded the express, and of course was thrown from the track by the displaced rail. Two sheriffs from Green River, who soon after followed the trail of the train wreckers to Elk Mountain, were ambuscaded by the latter and riddled with bullets. A little later, the camp of these highwaymen was discovered, and I was invited to join a considerable troop of soldiers and civilians who had planned a surprise of the camp. It was the intention to shoot down the whole of them and not to take a single prisoner. Unfortunately, however, a few hours before the designated time for starting, one of the civilians while under the effects of liquor talked too freely at Rock Creek, regarding the intended expedition, and a confederate of the robbers who overheard the remarks, quietly slipped away, procured a horse, and rapidly riding to their camp, apprised the robbers in advance of their danger. The banditti therefore escaped for the time being, going northward toward the Wind River country. Now, as I write, comes a despatch from Cheyenne to this effect: "A party of road agents named Harrington, Manuse, Ruby, Howard, Oleson, and 'The Kid,' have been captured near Rock Creek. They had in their possession, among other things, the saddle on which sheriff Widdowfield, of Green River, rode when killed last summer." This is a portion of the gang which were to have been surrounded in October, and the work was undoubtedly accomplished by Mr. M. F. Leech, who has been after the robbers for months.

### A Noted Scout.

While spending a few days at Laramie I saw considerable of this noted scout, whose successful operations in either capturing or frustrating train robbers or highwaymen have given him a reputation all over the Western States. Mr. Leech is a small wiry man, hails from Pennsylvania, and is an old subscriber to the *American Agriculturist*. He is unquestionably one of the most courageous and daring fellows in all this western country, and could he be prevailed upon to publish an account of his experiences and adventures, they would make a most interesting and exciting narrative. This, however, he has repeatedly refused to do, being unwilling, like all really brave men, to commemorate his own achievements. The officers of the Union Pacific Road tell me that he has been worth a small army of troops to them during the past year in frustrating the schemes of the stage robbers and road agents for wrecking the trains during the months of October and November. The authorities of the road have used every precaution against an attack of the robbers. Night after night squads of soldiers came aboard the train. The brakesmen placed their double-barrelled shot-guns, loaded with buckshot, in the end of the cars, within easy reaching distance, and other preparations, strongly recalled war times. The country most infested with these robbers lies between Laramie and the Green River, and when going through this region, the trains move very slowly; most of the passengers carry revolvers or other weapons, and unless the robbers should ditch a train in such a manner as to disable those on board, they would certainly encounter a very warm reception.

### "Wind Storms."

Frequently the winds sweep over the plains with so much force as to materially impede locomotion, and compel government and emigrant trains to come to a dead halt. Sometimes the railway trains also experience great difficulty in making headway against the winds, and are hours behind time in consequence. In traveling one day from Sidney to Laramie, the wind blew so furiously that the express was fairly compelled to force its way westward over the track. The sand and dust which fill the air at such times, and are so blinding to the eyes, seriously interfere with one's pleasure on the plains, and cause him to seek the mountain regions.

### Antagonism Between Sheep-Raisers and Cattle-Growers.

There is an almost natural antagonism between sheep-raisers and cattle-growers in the Western States and Territories; an antagonism which displays itself on all times and occasions, and in all manner of ways. Many fatal encounters and many miniature battles have resulted from this hostility. If, for example, a sheep-raiser and a cattle-man should suddenly be drawn into a quarrel in a public place, other sheep-raisers and cattle-men would, without stopping to inquire the cause of the difficulty, arrange themselves on either side of the contestants with as much celerity as if they belonged to different nations. The cause of this feeling is due to the fact that cattle-men maintain that sheep destroy the ranges and force the cattle to leave, because they will not eat the grass after the sheep have roamed over the plains. Furthermore, the sheep pastures cut up the large cattle ranges, which are often more than fifty miles long, and the sheep-raisers are naturally regarded as intruders by the cattle-men. The latter generally argue that Colorado, for example, is not adapted for sheep-raising, because there is no security against sudden storms. Naturally they would like to have the sheep-growers push down into New Mexico and Texas, which regions they maintain are specially designed for successful and profitable sheep-raising.

### Where Game is found in the Far West.

While buffalo have almost wholly disappeared from the regions traversed by the great public thoroughfares, and other kinds of game have perceptibly diminished in some quarters, there is no immediate danger of their becoming extinct, as has been argued by some writers. There will be good hunting for twenty-five years to come in many localities in the yet unoccupied regions of Western Colorado, Arizona, Wyoming, Utah, Idaho, Montana, and Dakota. You can leave New York, and in about a week's time reach the hunting centers where one who has a passion for the rod or gun can be fully gratified. Within six years' time, buffalo were seen in droves from the cars of the passing railway trains in Kansas, Nebraska, and Colorado. Now they have disappeared from Middle and Southern Kansas, and the present range of what is known as the "southern herd" of buffalo, lies in the region of country south of the Arkansas

River and extends to the Texas line. Here large numbers of buffalo have been killed during the past three or four years. Between the scant herbage of the plains, and the merciless destruction of Remington, Winchester, and Sharpe's rifles, the animals promise to soon disappear from this region. The range is reached by going out on the Atchison, Topeka, and Santa Fé road as far as Lakin, and then striking due south. There are a few buffalo left in North Park, Col., and to the country west of it. They are, however, very wary and difficult to find. A party of us rode over 130 miles in a fruitless effort to discover this drove. There are likewise a few buffalo in Northern Nebraska in the Niobrara region. The great northern herd, however, has pushed far northward beyond the Yellow Stone country, in their endeavors to get as far as possible out of the way of advancing civilization. Buffalo are easily domesticated, and one frequently sees them feeding with the cattle on the ranges. Some attempts have been made to raise them for profit. A few years ago, passengers on the Kansas Pacific Road constantly saw antelope from the windows. Now, however, they are rarely seen except in the western portion of the State and along the Colorado boundary. They are likewise diminishing in Colorado and Nebraska. In Wyoming, however, and Northern Colorado, there are more antelope this fall than there have been for several seasons, and the hunting has been excellent. I know no better locality for hunting antelope than North Park. We found countless numbers of them here and so tame that they would occasionally run through our camp before sunrise. After the genuine sportsman has shot one or two of these beautiful creatures, he desists from their further destruction unless it be for food. There are parties, however, calling themselves sportsmen, who shoot down antelope right and left for the mere brutal gratification of being able to tell on their return home of their achievements, and to add to the number of their horns and other trophies. Day after day I have marked the trail of these spurious sportsmen by the carcasses of animals unnecessarily and inhumanly slaughtered. There is naturally much feeling in Wyoming and Colorado against these butchers, and the frontiersmen often becomes so incensed as to threaten them with summary vengeance. Deer and Elk are to be found during the summer months in the snowy ranges of Colorado, and likewise on the southern borders of North Park. In October and November they begin to come out of the snow covered mountains, among the foot-hills and on the plains, where they are found in considerable numbers. The other day, while we were riding on the Utah Northern Road, the engineer was compelled

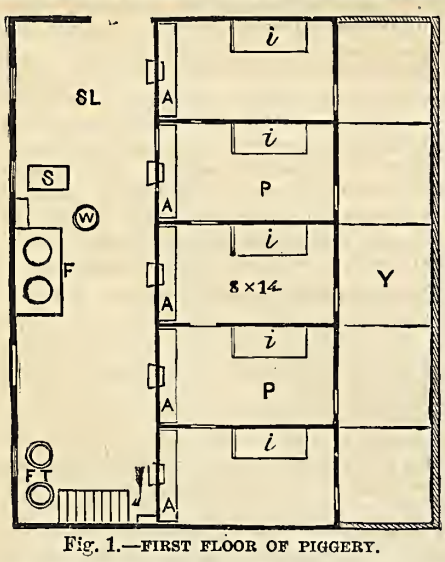



Fig. 1.—FIRST FLOOR OF PIGGERY.

to slack up the train for fear of running over a band of deer which were crossing the track in their descent from the mountain regions to the plains.

During the winter months the best region for hunting elk, deer, or antelope, is in Northern Wyoming, due north from Rawlins, in the Sweet Water and Wind River regions. Here appears to be a kind of winter rendezvous for wild game, and if a hunting-party secures the right kind of a guide, they can have their fill of enjoyment in this country. We had planned a horseback trip through this region, north to the Yellow Stone, and thence east through Dakota to the Missouri River at Bismarck. It was abandoned this year owing to the insecurity occasioned by the Indian outbreaks and the increase in the number of outlaws. If you can afford the time and expenditure, one of the most adventurous of western trips, is to proceed to Bismarck, go up

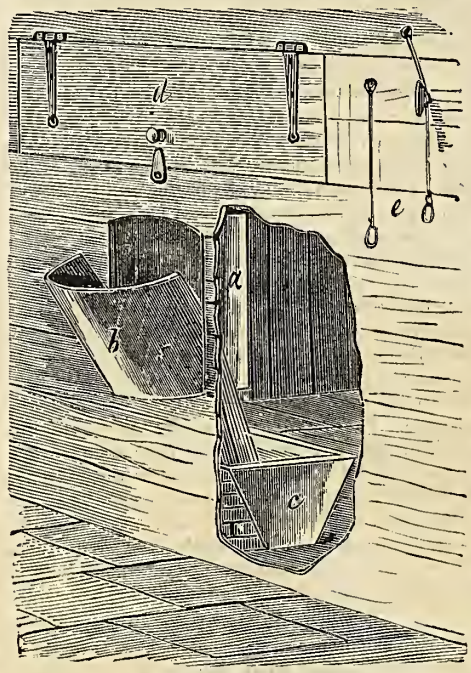



Fig. 3.—FRONT OF PENS.

the Yellow Stone River, visit the Parks, and then, pushing down through Wyoming, reach the Union Pacific at Rawlins, Laramie, or some adjacent point, and return to Omaha and Chicago by the Union Pacific and Chicago and North Western roads. [A portion of this correspondence, "Among the Lumbermen and Iron Miners of Lake Superior," is given on page 60 of this number.]

## A Convenient Piggery.

Last month we described some convenient implements in use in the piggery of J. W. Morrison, Orange Co., N. Y., and now we present plans of the piggery itself, from sketches made on the place. The building is two stories high, and 26×40 feet on the ground; front posts, 16 feet; rear posts, 14 feet. The roof is flat, and covered with gravel and tar. In fig. 1., *P*, *P*, are the pens, each 8×14 feet; *Y*, are the yards, 8×16 feet (here shown one-half size). *A*, *A*, are iron troughs, 1×7½ feet, shown also in fig. 3 at *c*. Feed tubs are located at *F T*, where they receive the skim and buttermilk through a pipe from the dairy. The floor of the pens are brick laid in cement, and slope 4 inches back to the sills, which are raised that hight above the floor, resting on iron pins, thus leaving a space for the discharge of dung and water into the yards. The yards are also provided with a tight bottom and walls of brick and mortar, thus preserving the manure from waste. A roof over the yards, to shed rain, and supported on posts, with no boarding, would be an improvement. At *S L*, fig. 1 is the slaughter room; the pens are partitioned off from this floor, so that the slaughtering can not disturb the pigs. The floor of this part slopes a foot in the 26 feet of length, and a few inches from the sides to the center. The furnace and boilers are at *F*, the scalding-tub at *W*, and the dressing table at *S*. The boilers are used both for cooking food and heating water for use in dressing the porkers. A door opens from the pens to the slaughter floor, and the pens are all connected by doors between them. The second story, fig. 2, contains the sleeping-rooms, 8×12, entrance to which is gained by inclined planes, *i*, *i*, from the pens below. No difficulty was experienced in getting the pigs accustomed to climbing up to their sleeping-rooms at night, and they keep them clean and dry; leaves are furnished for bedding. This economical arrangement of pens allows the keeping of about 50 hogs in a comparatively small building. The space over the slaughter floor extends up to the roof, except that a platform, *P*, *P*, fig. 2, runs around in front of the sleeping pens, on a level with the second floor. The room *R*, fig. 2, is used for grain bins and storage. The doors opening into the yards, and from pen to pen, are all managed by ropes and pulleys from in front of the pens, as indicated at *e*, fig. 3. This engraving also shows the iron trough and shoot, *c* and *b*; at *a* is shown a board set back 4 inches in front of the shoot, to prevent soiling the sheathing, which is neatly painted. To help in keeping out vermin, all space around the framework and behind the troughs (fig. 3) are filled in with brick and mortar.

## Do Prairie-Dogs Dig Wells?

Last summer one of the staff of the *American Agriculturist*, when in Nebraska, published information furnished him by Mr. M. T. Leech, then of Ogalalla, but now of Julesburg, Nebraska, to the effect that Prairie-dogs dig wells, each "dog-town" being provided with one. It was asserted, among other things that, no matter how far down the water might be, the dogs would keep on digging until they reached it, Mr. Leech adding that he knew of one such well two hundred feet deep. These statements have been widely copied, and they have been several times denied by, among others, one of the Professors of Yale College. We have met Mr. Leech this autumn in Wyoming Territory, where he holds a responsible position in the railway employ, and he reiterates the original statements, and affirms their truth, adding that if the skeptics will come to Sidney, Nebraska, they will find convincing proof of their accuracy. There is a "town" of 25 or 30 pet Prairie-dogs, about five rods from the track north-west of the Railroad Hotel. The owner of the Prairie-dogs will show the visitor the well, and will tell him that about the first move the dogs made, after being located there, was to dig for water. At a point on the Kansas and Pacific Railroad, not far from Buffalo Station, the workmen in sinking a tank reservoir some time ago, struck one of these Prairie-dog wells, and followed it down to a depth of two hundred feet. Mr. Leech's statements were verified by Professor Aughey, the well known Geologist at the Nebraska State University, who informed us at Lincoln, that he had discovered these wells while making geological explorations along the Logan River in Northern Nebraska. Mr. Leech, who is a frontiersman of long experience, further informs us that there is no foundation for the prevailing notion that dogs, rattlesnakes, and owls occupy the same holes. When for one cause or another a Prairie-dog abandons a hole, it is taken possession of by an owl, who stops it up with rubbish at about three or four feet from the mouth, and constructs its nest. Rattlesnakes infest the dog towns for the purpose of preying upon the young dogs, and the eggs of the owl. Mr. Leech states that he has several times killed rattlesnakes, within the stomachs of which he has found on dissection young Prairie-dogs three or four days old.

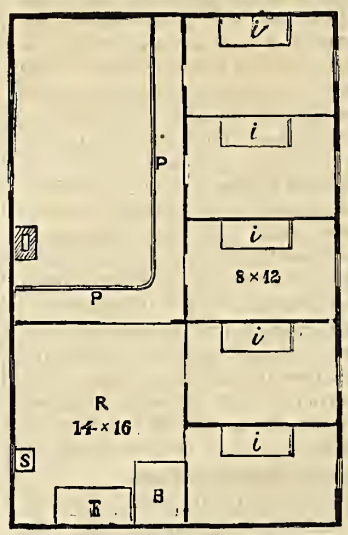


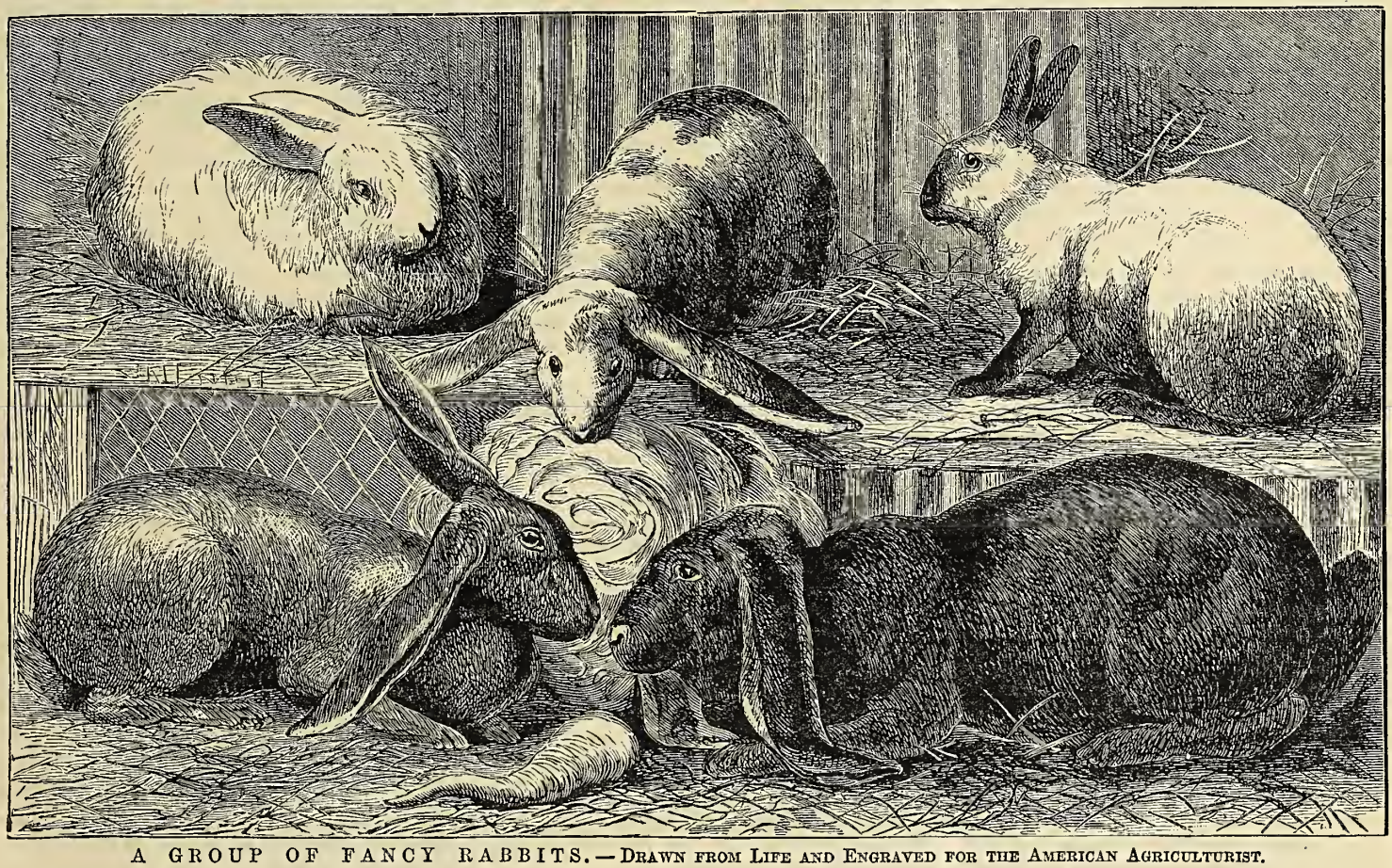

Fig. 2.—SECOND FLOOR OF PIGGERY.

## Raising Rabbits for Profit.

Rabbits in this country are commonly thought of and kept merely as pets. On waste lands in England they are often bred in large numbers for their meat and fur. To many people the meat of well fed rabbits makes a delicate dish when properly cooked, and it is nutritious and easily digested. Rabbits are quite as easily kept as poultry, are hardy, and are very prolific breeders. The writer, in connection with a friend, has begun to raise the common farm rabbits for market. Many of them were killed and eaten during the past season, yet in one year from the time the first two pairs were brought on to the farm late in the fall of 1877, they had multiplied to the number of nearly 100, as we counted 87 at one time. During the first winter they were kept in an out building, fed on grain, scraps from the kitchen, and a few roots. During last spring they were let out doors and they soon burrowed holes in a neighboring bank, where they lived, bred and thrived. Rats and other vermin, and dogs, killed many of the young, but the rest bred so rapidly that the loss was hardly apparent. They were fed with the chickens through the summer, but got most of their living in the fields, and without doing any noticeable damage to the crops, though at night, when they do their foraging, they were met with even in distant parts of the farm. Early in November we began to catch them in box traps and put them in pens to fatten. Here they were fed on oats, a little barley, corn-meal mush, and some green stuff, such as carrots, dried bean and pea vines from the gardens, etc., etc. This "finished them off" very rapidly, though already in good flesh from feeding on the clover stubble near their burrowing ground. The pens are those of an unused piggery, cleaned out, and a window put in for light. The floored yards outside were covered and lighted, to give them a chance for exercise; straw is kept in the inner pens for bedding, and an occasional dusting of plaster is given as a help to cleanliness. A little clover hay is also relished by them. A few weeks of the above feed and care sufficed to produce a goodly number weighing 8 lbs. apiece, alive, and dressing 5 lbs., which sold readily at $1 per pair, while the ordinary market price averages 50 cents per pair. The price obtained is really low for so much nice meat, being considerably cheaper than poultry; but it is encouraging, as there is now little demand for the article. This success shows what may be done in this line, and that a demand may be created. It is proposed next season to enclose an acre or two of wood land and open field with a woven wire fence, with palings driven in the ground to keep them from burrowing out, for breeding on a larger scale.

Rabbits are economical feeders, that is, they will consume the scraps of the kitchen, and weeds from the garden. No special pens or houses are required for them other than those above described. About the only precaution necessary is not to feed them with food that is wet from dew or other cause. Damp weeds from the garden should be allowed to dry before being thrown into the pens. Fodder corn, cabbage leaves, and similar succulent food, should be allowed to wilt before feeding. Breeders say that nine-tenths of the rabbit diseases are caused by feeding them wet food, though this seems rather inexplicable, as they do most of their own foraging at night. Where the rabbits have the run of the farm or a large yard, it is unnecessary to give them such food in summer, as they will gather enough of it themselves, but when confined in pens, as they must be when there is danger of their damaging a garden or the crops, they require it.

The fancy rabbits include many varieties, some of which are pretty pets, or are useful for crossing with the common sorts to increase their size. The fine engraving on this page shows the "Himalaya" rabbit on the right, which is perhaps the handsomest of the lot, being white, with black nose, ears, feet, and tail; he is large in size and his meat is good. The "Lop-ear," or Madagascar rabbits are well-known as the largest of them all, but in our experience they are not comparatively very good breeders. The "Half-lop" is a cross between the "Lop-ear" and common rabbit, and is a homely thing, little valued by some who have owned them. The "Oar-lop" on the platform nibbling at the cabbage is a curious animal, and makes a good addition to the collection. In the background to the left of the picture sits an "Angora" rabbit, noted for its long goat-like hair. For profit in breeding for table use, the common farm rabbit is as good as any, though perhaps a cross with the "Lop-ear" or "Himalaya" may give added weight and character. The business is one that smart boys or girls can attend to—except the marketing perhaps—and will give them interest and profit, and it is even worthy the attention of grown men having tracts of waste land good for no other purpose, or now unutilized.



A GROUP OF FANCY RABBITS.—Drawn from Life and Engraved for the American Agriculturist.

## One Year's Use of Artificial Fertilizers.

Can artificial fertilizers be profitably used? is a question of vital importance to farmers. It can not be settled by one year's trial, but by noting the results each year, the solution will come in due time. Except when soiling is practised, or a large amount of grain is purchased for food, most farmers on the older worn soils must resort to the use of purchased manures or fertilizers, in order to utilize the normal fertility of his land. The writer has been using artificial fertilizers for two years past, not so much as an experiment as from the necessity of growing crops on fields which otherwise must have lain idle. A trial was made in 1877, on $^1/_{10}$th of an acre nearly, or exactly 4,287 square feet. Common western field corn was planted in the usual manner, but fertilized with 50 pounds of the Mapes' corn-manure. The crop was 9 bushels of shelled corn, equal to 90 bushels per acre. No other fertilizer or manure was used. In 1878, the same ground, with more adjoining, in all, 7,776 square feet, was dressed with 100 lbs. of the same fertilizer and planted with "White Prolific" corn, procured from Tennessee. The crop was 43 baskets of ears weighing 1,723 lbs., which when shelled yielded a little over 25 measured bushels of grain. The ground was a little more than $^1/_6$th of an acre, making the yield about 150 bushels of grain per acre. Doubtless much of this large yield was owing to the character of the corn which bore from 3 to 5 ears upon each stalk, and well deserved its name "Prolific." Allowing sufficiently for this, the crop was satisfactory—the cost of the fertilizer being about $15 per acre, and the value of the grain alone, $75 per acre.

In 1878, 20 acres of rye were dressed with 6,000 lbs. of "grass and grain fertilizer," 100 lbs. per acre being used in the fall, broad-casted after the seed

was sown, and 200 lbs. in the spring. The crop at thrashing measured 23½ bushels per acre. One acre without manure yielded 7 bushels. One acre of Clawson wheat, dressed the same as the rye, produced 18 bushels per acre; and one acre of Silver Chaff wheat without fertilizers was too poor to pay for thrashing, and was scattered for the fowls to gather. A piece of 3 acres of common white field corn was dressed with 600 lbs. per acre of "corn fertilizer," one half scattered on the plowed ground and harrowed in, and the rest sown on the surface after planting. The yield was 489 bushels of ears, which were not shelled, being ground whole for cows. A plot of 3 acres of "White Prolific" corn adjoining, and treated in the same way, turned out 379 bushels of ears; a large portion of this plot was sheltered on the west and south by close tall woods, so that the yield of grain on nearly half of it was very light. One acre of "Evergreen" sweet corn, fertilized like the previous plots, produced over 9,000 ears which were sold green for $81.16, and a large quantity of small unmarketable ears was left in the fodder. This corn was planted in rows 3 feet apart, and when growing there were 2 to 3 stalks 18 inches apart in the row. Half an acre of the same kind of sweet corn, planted in the same way, and manured with $13.50 worth of New York city manure, produced $34.26 worth of green ears. The fodder on the acre plot was far heavier than on the half acre. Three acres of potatoes dressed with 1,800 lbs. of potato fertilizer produced 340 bushels; the potatoes were very small in size on account of the dry weather and the potato beetles. Two rows, without fertilizer, produced only small potatoes unfit for table use. A few rows of the field corn, without fertilizer, did not bear an ear worth husking. The soil upon which these crops were grown, was a light sandy loam, and had been cropped without any manure for the previous year; and for several years before that, only portions of it with a few hundred pounds of guano and bone-dust. All that was grown was due to the manure and fertilizers applied. The potato and corn plots are now sown to rye without any manures, to test the effect of the fertilizer in the soil. So far, although sown very late, the rye promises a fair crop. There is now a large quantity of manure making on the farm, rendered possible by the results of these fertilizers; nevertheless, there will still be a necessity for the use of them next season.

## Among the Farmers.—No. 37.

BY ONE OF THEM

I have not travelled very much among the farmers during the past month, but a goodly number of farmers have been among us—farmers that are farmers indeed. The great West fairly took New York by surprise. Our State dairymen have been in the habit of holding their cheese and butter fairs at Utica and Rochester, and other interior cities, and letting us find a market for their goods if we could. The dairy-produce dealers and shipping merchants have succeeded in disposing of the constantly increasing products, and have done very well in all respects except in keeping up the prices. Ex-Governor Seymour has finally induced the General Government to include cheese in the army rations. We make good cheese in New York, and no butter is better than ours—at least for keeping and shipping—except, perhaps, the Danish and the Irish. And if anybody in this country really makes just as good cheese and butter, and can sell them at a cent a pound less, we certainly were not anxious to know it. Nevertheless, the Western dairy folks, and the commission merchants, and the salt dealers, put their heads together, and the result was

### The Great Dairy Fair.

I don't know what the *American Agriculturist* editors have said or will have to say about it, but to many of us it was a most enjoyable and instructive exhibition. The premiums seemed to be thrown around "promiscuous like," especially among the cattle—but then, what do city committee-men know about milch cows? One of the most interesting features of American dairying of the present time is the successful effort to make

### Imitations of Foreign Cheeses.

Among the readers of the *American Agriculturist* there are hundreds of persons, no doubt, who were cheese-makers in the old country. Now if they did but know it, and if they know how to do it, they can hardly serve the land of their adoption better than by making here the delicious cheeses of their former homes. Our markets are tolerably well stocked now with certain kinds, but there are scores of others which will find a ready sale if well made. At the Fair, the variety of strange forms was almost bewildering. Of course we could not test them—that is, the real foreign ones, in bladders and other skins, and in various wrappings; but there were American cheeses, bits of which were distributed to all comers. For instance, "Fromage d'Orange,"—an Orange County cream cheese, something like *fromage de Brie*. It seems a pity to damage so nice a cheese with so absurd a name, but the maker of it shows enterprise, and though doubtless it will become better as more experience in its manipulation is gained, yet even now it is so delicate and agreeable that people will become very fond of it. This reminds me of

### A Way to Make Cream Cheese,

described to me by one of my neighbors lately. He takes good well-ripened pan cream, that is just "turned," and of uniform consistency throughout. This he wraps in a closely woven towel, and hangs it up in a cold place, letting it drip; the little milk which is contained in it curdles, and it becomes quite firm. After three or four days it is taken out of the cloth, salted, put in any convenient form, and pressed for a week or so, after which it is fit to eat, but improves if kept for a month or more. Most of the favorite kinds of English cheese are, it is well known, successfully imitated here; American "Schweitzer" (Swiss cheese), and the famous and redolent "Limburger," are so well imitated that few suspect when eating them that they are not imported. There are many readers of the *American Agriculturist* who might give accounts of their methods of cheese-making, which are different from the common methods of this country, and I hope they will do so. The Dairy Fair proved

### An Unexpected Success

in many ways, and it was very amusing to see how anxious the New York people were to get the "permanent organization" out of the hands of the Western "National" Association, and secure the control themselves. A great dairy fair will therefore become for a time a regular annual event, in New York, Philadelphia, or some other prominent seaboard city, and it remains to be seen whether the West, with its accustomed generosity, not to say with a shrewd eye to the main chance, will co-operate as heartily in the others as in this. The credit for a good part of what was creditable was certainly due to its dairymen.

### Cold Spring Water at the Dairy.

The difficulty of conducting water from cold springs any considerable distance underground without raising its temperature, is so great that milk-houses and dairy-pools are usually built over the springs. This often entails great inconvenience, yet may be entirely avoided. A plan which has been carried out with this result is as follows:—The temperature of the spring was never above 52° until August, and then only one or two degrees higher until it began to fall again in the winter. The distance was some 350 feet, and the water arrived at the house at a temperature of 60° to 65°. The pipe was a small leaden one. To get cold water a ¾-inch iron-pipe was laid in place of the old one. The whole course of the pipe was underdrained with tile in the same ditch, so that no water could ever stand near the pipe. Then the pipe was laid in a continuous trough of two 3-inch and two 5-inch hemlock strips, packed in charcoal dust from an old coal pit or "hearth." The supposition is, that as the box or trough will never be water-soaked, there is no danger that the pipe which conducts the water will ever come in contact with any moisture. Now it works admirably—delivering the water most of the year at the same temperature it has at the spring, and during August and September within a single degree of it.

### "Stanchions" for Milch Cows.

Some weeks ago I visited Lenape Farm, the country home of Mr. S. J. Sharpless, and of his beautiful Jerseys and South-downs. The cow-stable has been lately refitted in a very thorough and complete manner, with cement floors, channels at the rear of the stalls for solid and liquid manure, and everything in the most finished and practical manner. I was a little surprised to find a very simple and convenient form of stanchion used in the new stable. Not that I have either objection to or prejudice against them, but there is a general feeling in opposition to them as *cruel*, and in most modern stables, where the health and comfort of the cows is especially considered, tie-chains are used. If I were to decide whether to use stanchions or tie-chains, with particular reference to cleanliness, I would favor stanchions; if in regard to small liability to accidents, to security, to durability, and to convenience in handling the cattle, and in cleaning out the stable, in each case the decision must be in favor of stanchions. So it really appears as if the only objection to them were on the humanitarian plea that the cattle suffer. Of this there is absolutely no evidence. Cows standing in them, lying in them, eating in them, give no sign of discomfort, but quite the contrary. They may be kept in better order on the same feed, because they are cleaner, more securely confined, are not made restless by the ability to look about, and to reach after the feed of the adjacent cows.

It was here in the stanchions that old *Niobe*, the Centennial prize cow, which died last year at the age of 18 years, if I remember rightly, dragged out her existence, in good health and with a keen appetite, yielding a full mess of milk and bearing a calf every year; and into these new "stanchions" will come a herd of beautiful and excellent Jerseys, all of whose surroundings are studied with care that they may produce the best possible income both in butter and calves. Mr. Sharpless' experience is his guide, and I have no doubt, were he catechised, he would assert his belief that by the use of stanchions there is a great saving of labor about the stable; that the milk is sweeter and cleaner, and the butter better flavored; that the cows are in less danger of hurting themselves or one another. And for one I feel almost glad that my own cow-stable needs renewing before long, for then I plan to give my cows and my men the comfort of these stanchions.

### Light on the Road.

I have been so annoyed with the glare of the light carried at the side of the vehicle, fastened upon the dash-board, or attached overhead, all of which ways are common with us, that I gave up using a light altogether until it struck me that the best place for a lantern was underneath the wagon. So a stout strap and snap-hook were placed just back of the forward axletree, and to this a lantern hung. It swings about somewhat, and casts the most remarkable wheel shadows, which make the visible world look like a Brierian monster many armed and thousand clawey-fingered, in spider-like activity, enveloping the vehicle, while the shadows of the horse's legs dance a funny jig in front. Nevertheless, the road is well lighted for rods in front, and every rut and pebble is plainly seen several feet before the wheels. This contrivance makes driving at a moderately fast gait possible on the darkest nights, and at a slow trot even pleasant. I must add that the "Brierian spider," just alluded to, though only a shadow to us, is no myth to the horses, and that they need careful handling or leading a few rods, or until they are assured that no harm will come to them, and get over their natural nervousness, which will soon result.

**Mechanical Condition of the Soil.**—Plants in their growth collect food from the soil and the air. Thin roots penetrate the soil in every direction, extracting food from the rock particles, and storing it up in their stem, leaves, and fruit, for the benefit of the cultivator; but they cannot do this if

the soil is hard or impervious, or if it is wet, thus keeping out the air and preventing the proper functions of the roots. As the season approaches for preparation of the land for crops, as many of our readers, indeed, in the South are already plowing and making ready for planting, these facts demand attention. If we would produce the largest crops, we must do more than apply manure and plant good seed; we must thoroughly pulverize the soil by repeated plowing and harrowing—then plow and harrow again; we must drain the wet fields, and when the crops are up, we must thoroughly cultivate the ground, to keep it light and free of weeds.

## Fertilizers vs. Plant-Food.

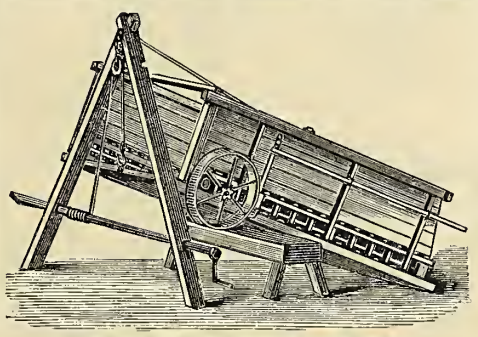
Experiments are being continually reported by farmers that are misunderstood and lead to conclusions, on the part of the experimenters at least, that are detrimental to agricultural progress. Take an example now before us, that of a farmer who used lime, superphosphate, guano, salt, a chemical fertilizer, and no manure, on as many plots of wheat. The yield in each case was good, varying from 12 bushels on the unmanured, to 26 to 35 bushels for the manured plots. The lime gave the greatest apparent *profit* per acre, though the yield was not so large as where guano, chemical, and superphosphate were used. Reasoning from the figures alone, this experimenter thinks he has a guide for future practice in wheat farming, and accordingly has now put 70 acres in winter wheat manured only with lime. We shall be interested to learn the result of several years of this practice, but predict that it will prove an unprofitable venture. The soil on which this experiment was tried, is a naturally fertile clay wheat soil. Lime on such land always has a good effect for one or two applications; not as plant-food, however, but in acting upon the soil chemically to make available that fertility which is contained in the soil, but in an unavailable condition. Lime *adds* no needed element to the soil, but forces it to yield up its stores of fertility. It should not be understood from this, that lime is not plant-food, for it is; but the great majority of soils, if not all, contain so much of it already, that there is no necessity for supplying more. This lime, however, is in such a form that it does not have the effect upon the soil of newly applied freshly slaked lime, as explained last month in the article headed "Some Facts about Lime."

It is a wise economy to utilize whatever of fertility the soil contains, but it must be done judiciously and not wastefully. So soon as it is found that the application of lime no longer produces adequate crops, the true reason should be assigned to the result, and that reason is, that the supply of plant-food is being exhausted, and outside sources must be called upon to make up the deficiency. It is legitimate and proper to draw upon our bank account, but we must also deposit, or there will soon be nothing in the bank to draw from.

Jethro Tull made the same mistake when he undertook to raise crops by superior cultivation without the use of manures. By mechanical means he made available the latent resources of the soil, but it was like a draft upon a limited bank account; hence his system could not be successful as a continued practice. Let us experiment, but let us do it with our eyes open and with a full knowledge of the things we experiment with, and be careful about drawing conclusions from insufficient data, that we may not lead ourselves or neighbors into error.

## Moving a Thrashing Machine.

To move a tread-power thrashing machine, and set it up readily, the following method will be found convenient. A pair of shears 8 feet long are provided, with one short leg, which is furnished with a pin at the end, and is strengthened around the pin with a ferule. The shears are connected at the top with a bolt and clevis, and are furnished with a block and pulleys. A hole is made in each leg of the shears, in which an iron bar may be inserted. The head of this bar is made square, so as to fit a winch provided for it. At the head of the wagon, two strong stanchions are fitted with holes into which this bar may be slipped. At the rear of the wagon bed, which is made of 2-inch plank, there are two square staples, upon which two sliding bars may be hooked, the lower ends of these bars rest upon the ground. A few hard-wood rollers are also provided. To load the machine, the shears are placed in front of the horse-power, as shown in the engraving, with the pin of the short leg fitted into a ring of the cross-bar. The iron bar is slipped into the holes in the long legs, as shown, and the winch is attached. The rope is given a few turns around the bar, and the hook at the other end of the rope is fastened to the lower end bar of the horse-power. By turning the winch the horse-power is raised, the bench under it is removed, and the machine is let down upon the rollers. The wagon is brought in front of it, the slide bars are hooked into the staples, the bars inserted into the holes in the stanchions or posts at the front of the wagon, and the rope is wound up, drawing the machine on to the wagon



TO LOAD AND UNLOAD A THRASHER.

bed. The thrasher is drawn up in the same way into the horse-power, and the whole are fastened into their places by the rope. By this method it is a very light job to take down or set up a tread-power machine, or to move it from one farm to another. To know that this may be done so easily, may be an inducement for many farmers to join in procuring a machine for their common use.

## A Simple System of Farm Accounts.

(THIRD PAPER.)

### Closing of the Yearly Accounts.

If every item of business during the year has been regularly and correctly entered in the several accounts to which it belongs, the sum of each account will show exactly how that particular department stands. For example, let us take the Dairy account, as it was begun in the second article of this series, and suppose it to be continued to the end of the year. The sum of the items may be taken as below:

DAIRY ACCOUNT.

| | | | Dr. | | Cr. | |
|---|---|---|---|---|---|---|
| 1878. | | | | | | |
| Jan'y | 1 | Value of 14 cows on hand.. | $800 | 00 | | |
| Dec. | 31 | The year's feed, etc..... | 987 | 50 | | |
| | | " " wages..... | 360 | 00 | | |
| | | " " sales of milk, butter and calves..... | | | $1,634 | 30 |
| | | Value of stock on hand... | | | 885 | 00 |
| | | Bal. to gen. acct. (profit) | 371 | 80 | | |
| | | | $2,519 | 30 | $2,519 | 30 |
| 1879. | | | | | | |
| Jan'y | 1 | Value of stock on hand... | 885 | 00 | | |

Now it is time to close the accounts for the old year, and start afresh for the new. An inventory of everything is made as before. The items should be entered in a "stock-book" kept for the purpose, and the values carried out in the money column; a page may be used for each class of items and their values footed up on each page, and the separate footings gathered into a general account on a page by itself. The inventory of the dairy stock may be supposed to amount to $885, allowing a fair estimate for the changed values of the cows that are either better or worse, and for the heifers brought into profit. This amount is carried, in the closing of the account, to the *Dr.* side, as in the example above. A balance is then struck, which in this case is $371.80, and is the actual profit made in the dairy. This balance is carried to the general account, as below, where all balances of the several accounts are gathered. In like manner all other accounts are settled and balanced—the amount of stock on hand being brought in as shown and carried forward in the account as the balance of value on hand at the beginning of the new year.

As a test of the correctness of the accounts they should be footed up and balanced before the value of the stock is brought in. The sum of all these balances ought to equal the exact sum of the general balance at the beginning of the year. This must be evident, if every item entered has been placed in the two accounts to which it belongs; being credited to that *from* which it has been taken, and charged to that *to* which it has been carried, and in this way the general balance must remain the same. This is the principle at the foundation of "double entry," and it is so simple and plain that no person should keep books upon any other system. It is the bringing in of the stock at the end of the year which changes the balance of the general account and which makes up the sum of the new balances. As an example of a general account the following is given:

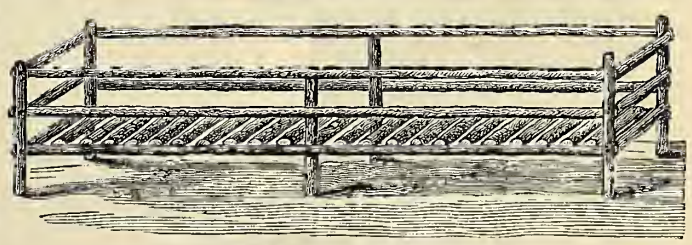
GENERAL FARM ACCOUNT AND STOCK.

| | | | Dr. | | Cr. | |
|---|---|---|---|---|---|---|
| 1878. | | | | | | |
| Jan'y | 1 | By value of land and stock | $9,275 | 88 | | |
| Dec. | 31 | To house expenses..... | | | $1,128 | 85 |
| | | " farm expenses..... | | | 423 | 22 |
| | | By balance from grain and hay..... | 1,022 | 38 | | |
| | | By do. from dairy..... | 371 | 80 | | |
| | | " " poultry..... | 86 | 21 | | |
| | | " " sheep..... | 121 | 00 | | |
| | | " " pigs..... | 73 | 16 | | |
| | | " " feeding cattle | | | 11 | 22 |
| | | " " orchard and garden..... | 111 | 12 | | |
| | | By balance, being total stock on hand, including cash, less debts owing.. | | | 9,498 | 26 |
| | | | $11,061 | 55 | $11,061 | 55 |

The balance of this account, $9,498.26, consists of the sums of the balances of the several accounts, stock, debts owing or due, and including the cash; and it should represent the whole of the farm property, land, stock, crops in the ground, and improvements of buildings and real estate after the debts upon it, if any, are deducted, so that it is an accurate index to the financial condition of the farmer. The satisfaction of knowing this, and how he stands with the world, ought to be a sufficient inducement for every person who does business of any kind, to keep regular and accurate accounts.*

## Fodder Rack for a Large Herd.

In feeding hay out-doors to a large herd of cattle, the rack needs to be made of strong materials, well put together; boards will not answer. It may be built of timbers fastened to posts set in the ground. A good bottom to the rack is made of a cross-piece of small unhewn timber pinned or spiked to the bed-pieces. Intermediate posts support and bind together the stringers at intervals. This rack, which is shown in the engraving, may be constructed of any desired length, and may surround the stack, thus serving as a fence to protect the stack, and as a fodder-rack at the same time.



FODDER-RACK FOR MANY CATTLE.

*NOTE.—If anything in these articles is not clear, we shall be glad to make it so on receiving an inquiry upon the particular points which may need explanation.

## A Virginia Corn-House.

A progressive farmer, residing in Chesterfield County, Virginia, where money is scarce and wood plenty, finding the buildings greatly dilapidated, went to work to right them. He sends the result of his experience, in one case, to the *American Agriculturist*, for the benefit of those in similar circumstances. He says: "My first attempt was a corn-crib, for which I adopted the rustic style, using the young pines which had overrun the fields. By the plans of my work, herewith given, any person understanding the use of the simplest tools, can construct such a building. From a white-oak log, 18 inches in diameter, cut 4 pieces, each 5 feet long, for foundation-posts, squaring 3 feet of the top (fig. 1), the portion intended to go into the ground being left entire. The depth to dig the holes was found by levelling; for example, the spot where one post is to be set, is six inches higher than the ground where the second is to be; the first hole is to be dug 2 feet deep, and the second 1½ foot, and so on for the others; this will make the posts level on top. To make the building rat-proof, I nailed an inch board on top of the posts, projecting 5 or 6 inches each way; then plates of tin were fastened to the edges of the board, the corners being secured together with wires (fig. 2). Two sills (8 to 9 inches through at butt), with a straight spot hewed at each end, were spiked on top of the posts, and four floor-timbers, notched where they rest upon the sills (fig. 3), were nailed in place. To hew the ends of the sills and other timbers so that they will not wind, after having cut the flat surface on one end, tack a straight-edge (*a*, fig. 6) flush with it, as at *b*; then hold another straight-edge on the other end, and sight toward the first, bringing their edges in line, and mark where the score is to be cut as shown by this. Having the floor-timbers in place, take a chalk-line and snap it across their ends, over the center of the sills, to mark the places for the mortises for the posts (*c*, *d*, fig. 5). In width, the mortises are one-third the average diameter of the posts, and in length the diameter of the smallest post. As the tops of the floor-beams will not be level, a level line to work from as a guide in making mortises, putting on the plates, etc., is obtained by a chalk-line across the bottom of the posts as shown in fig. 4; this is done by standing

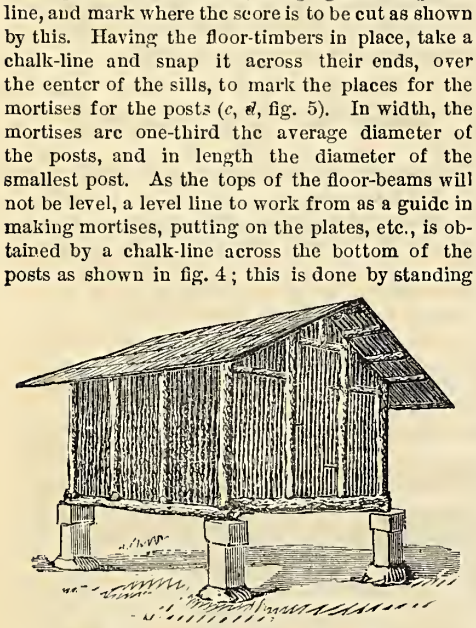
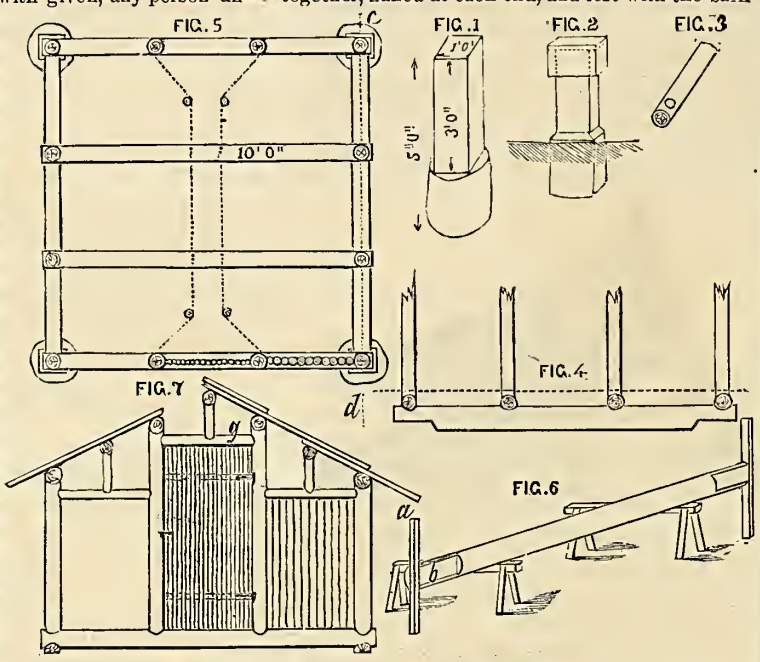


Fig. 8.—RUSTIC CORN-CRIB COMPLETE.

the posts in place—securing them with cleats—and afterwards taking them down to cut the tenons. All mortises and tenons should be cut, holes bored, and the timbers fitted together on the ground, as in framing any other building; then if one or more of the poles is crooked, it can be allowed for in the framing." [Work may be saved by dispensing with all mortises and tenons, stout iron spikes being sufficient to hold them together securely. EDS.] "Fig. 7 shows the framing to support the purlines of the roof, which is covered with long shingles rove from pine logs; the shingles project 2 feet over the eaves. The butt-ends of the plates and purlines are all put at one end; the slight taper will do no harm. The poles for the frame above the sills are uniformly about 5 inches through at the butt-ends, and have the bark removed. The panels are made of 2 to 3-inch poles, set quite close together, nailed at each end, and left with the bark




Figs. 1 to 7.—WORKING PLANS OF CORN-HOUSE.

on, thus producing a pleasing and picturesque effect. The floor may be of 2-inch boards or split poles. The door or doors may be constructed of 2-inch poles, nailed to stout cleats and a brace, and hung with ordinary hinges. It is better to have the jambs of ash or hickory, as being more durable. Shelves may be put up on either side of the door, for storing seeds, etc. Partitions are shown by the dotted lines in fig. 5. All the lumber used on my corn-house, was fit for no other purpose save fire-wood, and all the labor beside my own, was two days work of a helper at 75 cts. per day. With the abundance of pines and cedar here, one can put up such buildings very cheaply, and they are much more appropriate to the country than the old block-houses, and are more durable, and pleasing in appearance, as the engraving at fig. 8 plainly shows."

## Study Your Markets.

The question of success or failure with most farmers, depends upon their knowledge of the markets. Many industrious and skillful farmers fail just at this point. They know how to cultivate crops, but are poor salesmen. They keep in the beaten track, and never vary the relative proportion of meadow, pasture and tillage, seldom try a new crop, or seek to improve their breeds of cattle, swine, or poultry. They do not read much, and seem not to be aware that farming, like other pursuits, is in a transition state, and that they must meet new demands or fail in business. The change is so great from the age of homespun, which closed some fifty years ago, to the present time, that our younger readers can hardly appreciate it. Then, almost every thing consumed in a farmer's family in the Northern States, was produced on his own farm, or manufactured under his own roof. Nearly all table supplies, except sugar, molasses, tea, and coffee, were of his own raising. The housewife spun and wove not only all her table and bed linen, but all the clothing for her household. She made the cotton and tow wicks and dipped them in tallow, for the lights in the dwelling. Travelling shoemakers made the annual supply of boots and shoes. The trade which a farmer had with the outside world was of a very limited character. All this is changed now. No cloth is made in the home. The spinning-wheel and loom have long since gone into kindling wood, and only the small linen wheel and distaff is preserved occasionally as a memento to the thrifty habits of our grandmothers. The farmer has become a purchaser; buys all that he wears, buys much that he eats, buys oftentimes his fuel and lights. To meet these new demands, he has occasion to study the markets, to find out what people want in exchange for the things he must purchase. Especially does the eastern farmer need to study the home markets. Tillers of the low-priced lands of the new states, by aid of cheap transportation, are able to compete with him in wheat, corn, and other grain, so that he can not afford to raise them to sell, by the old method at least, though possibly he can for his own use. Hay, potatoes, and some other articles are so bulkly, that he has little competition and can sell them at a profit. In perishable articles, poultry, eggs, butter, milk, vegetables, fruit, he can compete with the prairies. With a knowledge of the markets, and the capacities of the soil, it is not a very difficult matter to ascertain what crops will pay, and what will not. Those who do not study these conditions of success, and can not tell what any given crop costs, do not know whether it pays or not. We want this knowledge and must have it, if we are to succeed in business. We must give up some of the old crops as unsuited to present circumstances, and cultivate those for which we know there is a profitable demand. Or an enterprising man can often create a demand for a first rate article (See description of "clouted cream," in article on "Deerfoot Farm," in the January number, as an example), and thus have a speciality that will return him a handsome profit, and win him the reputation of being an enterprising man. He will at the same time set an example to other farmers, that may benefit the agriculture of a whole neighborhood or even of a county.

## Frost-Proof Cellars.

The usual practice of keeping out frost by banking up the cellar with earth or manure, is objectionable for many reasons. A much more cleanly and effective method is by providing an extra sash for the window and a sheathing of board with an air space between it and the wall. An extra sash may be fitted to the window by making a frame for the opening to which the sash is hinged, as shown in the cut, fig. 2. In mild weather, the inside-sash may be thrown up and hooked to the ceiling, and closed in cold weather. It is necessary to point up with mortar all around the window-frames both inside and outside. Such an extra sash is also useful in the summer, as it keeps heat *out* then as well as heat *in* at this season. Before putting up the sheathing outside the wall, the cracks in the stone or brick-work and under the sills are pointed up. Then furring-strips are fastened to the wall, and boards nailed to them (see fig. 1). The joints of the boards should be closed by battens, or the boarding may be of siding.

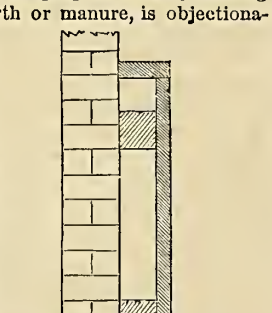


Fig. 1.—PROTECTING CELLAR WALLS.

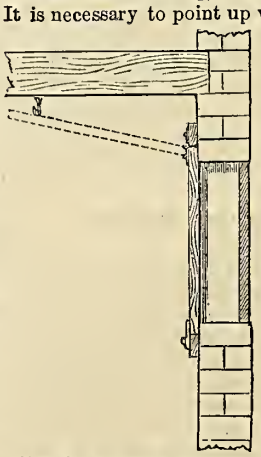


Fig. 2.—DOUBLE CELLAR WINDOWS.

## Importance of the Male.

It has been a too common practice among farmers to look upon a bull merely as an inconvenient necessity, and the cheaper his services were obtained and the easier done with, so much the more was gained. While the breeders of choice stock have done much to dispel this illusion, yet, even though farmers disbelieve it, their practice is still too often in accordance with the same idea. "A calf is a calf, and the only necessity for it is to renew the flow of milk from the cow," is the expression of the opinion largely held in many milk districts. But the calf is more than this; it is the animal that we shall look to for milk by and by, and there is great necessity for making the most of it. To do this, the calf must not only have a good dam, but the sire is also an important element in the problem, as he has at least equal influence with the mother in shaping the characteristics of the offspring. In choosing the bull to breed from, it is not too much to say that as much care should be exercised, as in the selection of the whole herd of cows, because, so far as the offspring are concerned, he is *half* the herd. The cost of the services of a bull, therefore, or of the animal himself, if he is to be purchased, is to be considered not in comparison with a single cow, but with the whole herd of twenty or thirty, and the offspring. A farmer owning a herd of fairly good cows, may, by the use of a high-bred bull, that is, one which has his characteristics strongly fixed by continued breeding, breed *up* a herd of superior milkers, butter pro-

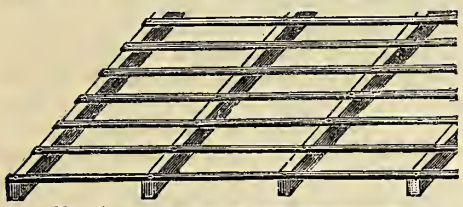


Fig. 1.—ROOF-FRAME FOR THATCHING.

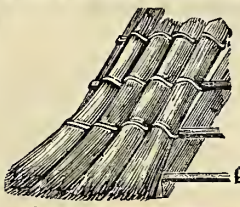
ducers, or beef animals, according to his needs and his skill in the practice. For the sex which has the desired qualities the strongest developed will have the greatest influence in moulding the character of the offspring in the direction we are seeking.

In breeding valuable blooded stock of any kind, these facts are of special importance, as there are greater risks, and also greater possible gains. Five dollars difference in the cost of the service of a male may make a difference of $25 or $50 in the value of the calf; and $100, or $500, in the price paid for a bull may make a difference of $25 in every calf from a herd of 20 cows for 2 or 3 years, or $1,000 to $1,500 in all. Not that price alone governs the value of an animal for breeding; the eye of the experienced judge, and the record of the family must also come in as important factors in the selection. But no breeder can afford to run any unnecessary risks, and especially should not be tempted by low prices, when he is not absolutely sure of the quality of the animal otherwise. The selection of the bull for the first service with a heifer is as important as at any stage, in fact, more important, for the first impregnation may influence the whole after progeny of the cow. The characteristics of the first sire, even to color and form, are often noticeable in the second, third, and subsequent generations. (Those interested in these important questions should read the new book on "Stock Breeding," by Prof. Manly Miles. See our Book List.)

We are led to these remarks by a recent trip through a noted milk-producing section, and by the experience of a friend in the purchase of a herd of imported Jerseys. In the first case, very little attention has been paid in the past to the character of the bull, the calves often being killed as soon as born, and the farmers depending on renewing their herds from back country districts and from peddlers. Long experience, however, has taught that this is an unprofitable practice, as compared to the careful breeding and rearing of the animals on the home farm, and now the farmers are getting more interested in the question of breeds and breeding, and are willing to pay more for the services of superior bulls, thus encouraging their keeping by some of their number. In the second case alluded to, the gentleman thought of the bull no more than as *one* of the cows, in fact, paid a less price for him than for any one of the former. The result was, that he got an animal not so good as the average of his cows, and he is solicitous for the quality of the forthcoming progeny. Some of his first season's calves, being well sired in Jersey, are very superior animals, making the comparison the stronger.

## How to Increase the Home Market for Cheese.

The recent "International Dairy Fair" called attention to the fact that farmers themselves consume but little cheese, though it is one of the most



2.—THE BEGINNING. 3.—THATCHER'S STAGE.

wholesome and economical articles of food. Its value is much better appreciated in England, whither the larger part of the $12,000,000 worth of cheese exported from this country goes. In almost every English house, whether palace or cottage, cheese is a staple article of food, and the laborer has his cheese as regularly as his bread. The use of cheese is far more common in our cities and villages than in rural districts. In some farming towns not one house in ten has cheese upon the table, regularly. The introduction of cheese factories in the dairy districts has had a tendency to banish cheese from the farmer's table. When it was made in the house, it was a common article of food. It was eaten with the bread and cakes for lunch, with the pastry at dinner, with the bread and milk of the farm-hands at supper. Now the milk all goes to the cheese factory, and the cheese is so much relied upon to bring money, that very little of it comes back to the family. The factories have so improved the quality, and so cheapened it, that in many districts it has ceased to pay to make

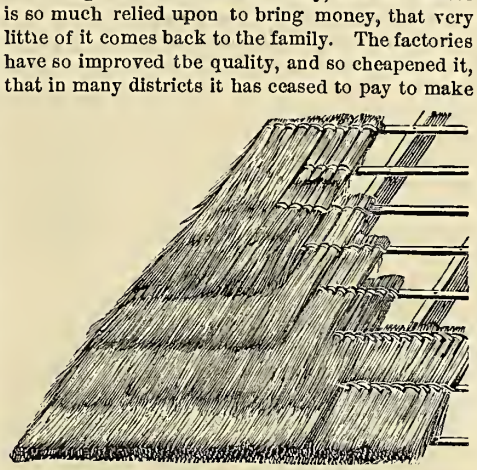


Fig. 4.—THE WORK PROGRESSED.

cheese, even where butter can be made at a profit. States that once exported cheese in large quantities to Baltimore and the South, are now large importers of the factory-made article. There is talk of making cheese a ration in the army to increase the demand for this article. But this is only a drop in the bucket in comparison with the nearly fifty millions of people. We need to popularize cheese as thoroughly as butter. We have no doubt it would contribute largely to the health and thrift of the country to do this. There is hardly any form of animal food in which we can get so much nourishment for the money as in cheese. The factory-made article is good enough for immediate consumption, and meets very well the wants of the city and village population, who can buy it at the grocery, by the pound, as suits their convenience. *But farmers want a smaller cheese*, and of better keeping quality. We do not want a 50 or 70-pound cheese, but one of 15 or 20 pounds weight, cured sufficiently to keep until it is consumed. This will greatly help the home market for cheese. CONNECTICUT.

## Thatching Roofs with Straw.

A thatched roof is tight, warm, and durable, is easily repaired, and may be wholly replaced by repeated repairs in the course of years; thus lasting continuously.—It will come in well on the prairie farms where timber is scarce, and shingles are expensive. It is warm in winter, while it is less penetrated by the hot summer sun. It is available for barns, stables, and cottages, while it is by no means ill-looking. But to be lasting, it must be well made. The first requisite is hand-thrashed rye, barley or wheat-straw, which should be dampened before it is used. The next is a proper arrangement of roof-laths. These may be round or split saplings, not more than 2 inches thick, flattened where they cross the rafters, and securely nailed (see fig. 1). The working-stage (fig. 3), consists of a wide board a few feet long, having two pins at one end which hook on to the roof-lath, a cleat at the lower end, and a seat about the middle, for the thatcher while at work. Besides one for each workman, a spare stage

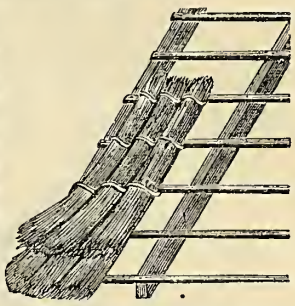


Fig. 5.—AT THE GABLE.

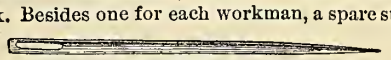


Fig. 6.—NEEDLE FOR USE IN THATCHING.

will be convenient in moving about the roof. One person prepares the straw in bundles of a convenient size with the butts evenly arranged. A bundle of straw is first laid upon the laths at the corner of

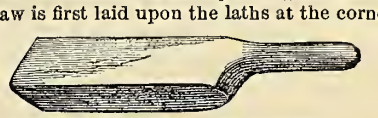


Fig. 7.—THATCHER'S MALLET.

the roof, with the ends turned outwards to the gable as shown at fig. 2, and is tied down to the laths by tarred twine, a wooden needle (fig. 6), being used to carry the twine. The next bundle is laid close up to the first, with the lower ends turned outwards a little less, and is tied firmly, a knot being made at every tie. This is continued for a few feet, when the second tier is begun (see fig. 5), the butts being turned out so as to project a few inches over the edge of the roof. The work is thus continued until the peak of the roof is reached, the tiers being laid as shown at fig. 4. The peak is covered by bending the straw over upon each side, and fastening it down by the twine. A thin split sapling, hoop-poles, or even barrel-hoops, may be used to finish off the peak. These are laid upon the straw a foot or less from the ridge, and tightly bound down, a man inside helping. To make a continuously smooth sloping roof, as represented at fig. 8, the straw is shaved off with a grass-hook, or a knife made of a piece of a scythe-blade, and then beaten down with the mallet shown at fig. 7. The more carefully this is done, the more closely the straw will lie, and the tighter the roof will be.

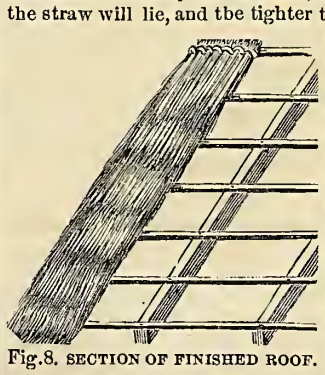
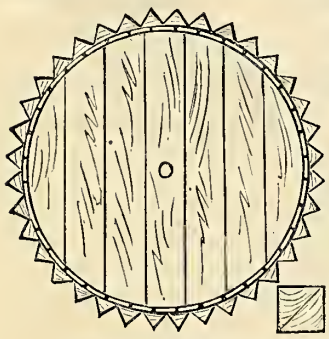


Fig. 8. SECTION OF FINISHED ROOF.

By repeating the layers until the straw is six inches thick, there will be none of the binding-twine visible except at the ridge where it is bound around the strips. When the slopes are finished, the edges of the roof are cut and trimmed smoothly, the eaves being cut horizontally, or nearly so, and the gables perpendicularly. Thatched roofs are coming into more general use, often to the pecuniary advantage of the farmers, who thus utilize a product that is worth very little.

## The Use of the Roller.

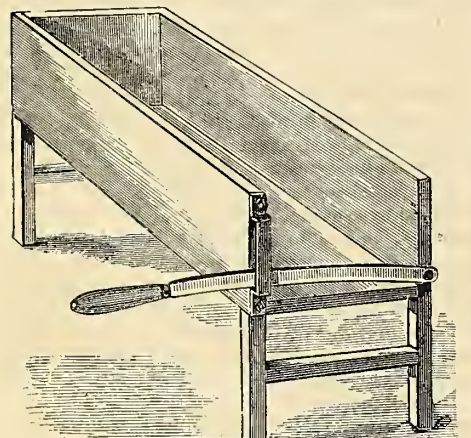
The roller is often made to do more harm than good. The purpose for which it is used upon newly-sown grain fields is to break up the clods as well as to compress the soil, and the former is the more important of the two. Merely to compress a mass of hard lumps often injures the crop, as it prevents the successful germination of the seed by burying it under hard and impenetrable clods. A roller that will break these clods and compact the surface will be the most effective. English farmers use an implement called a "Crosskill roller," which has a surface serrated both ways, so that it is cut up into points. This is an invaluable implement upon clay soils. A roller which will answer the same purpose may be made as shown in the engraving. This consists of an ordinary wooden roller, to the surface of which are bolted three-cornered strips of hard-wood. A square strip 4 inches thick is sawed lengthwise and diagonally, as shown in the corner of the engraving, and these strips being attached to the roller, furnish a number of cutting edges, which break up the clods and leave the soil compact and in small ridges, which is far preferable to the flat surface left by the ordinary smooth roller.



HOME-MADE ROLLER.

## A Home-made Root Cutter.

A machine for slicing a small supply of roots may be constructed as follows: A box is provided, proportioned as shown in the engraving. It is set upon four legs, two of which are longer than the others, in order to give a proper slope to the box.



HOME-MADE ROOT-CUTTER.

At the lower and open end a knife is fitted, at the left by a bolt, and on the right playing loose in a long perpendicular slot. The knife is made of a piece of scythe blade; the box being filled with roots, they are held up to the blade with one hand, while the cutter is worked by the other.

**To Make Farming Profitable.**—"A Subscriber," gives the following as the rules that have led to his success in farming: "(1.) I cultivate double the area that any of my neighbors do, compared with the size of my farm, and get double the average crops per acre. (2.) My rotation extends two years beyond the usual course: Hoed and grain crops, the first two years, of a character suited to the soil and the markets; third year, clover; fourth year, wheat; then three years in hay. (3.) Breeding a large number of pigs as the most economical medium for the conversion of grain into money and manure. My pigs are always cross-breeds, using a boar of a quickly maturing breed on selected sows. They are all killed and sold at six to eight months old. (4.) The purchase of rich food, such as bran and cotton-seed meal, for its manure value, and to be fed in connection with straw, corn-stalks and swale hay, thus enhancing the value of this rather coarse fodder. This enables me to mature grade Shorthorn steers inside of two and a half years. I also feed clover hay with the coarse fodder. The first principles of this system, that are essential to its success in anybody's hands, are: The use of more capital than usual, improved implements, commercial fertilizers, thorough cultivation, and careful attention to the selection of seed.

## Two Troublesome Grasses.

### Cheat and Darnel.

The "Pacific Rural Press," speaking of the proposed grinding of the seeds of "Cheat"—probably winnowed from wheat—as a food for stock, says: "The plant which is commonly called Cheat in this State, is *Lolium temulentum*," and urges caution in its use. It is strange that the common names of grasses should be so misapplied in California. In all the older States, and in all works on grasses and grains, as well as in the "Report on the Grasses of the State," in the Transactions of the California State Agricultural Society, the name "Cheat," or "Chess," is given to *Bromus secalinus*, and to that only. This is a widely different grass from the *Lolium*, the common name for which is "Darnel," or "Bearded Darnel." Holding it to be of as much importance to secure uniformity in the common names of weeds as in those of cultivated plants, we hope our friends of the "Rural Press" will not contribute to the confusion which already exists, by continuing this incorrect application of a common name. As both grasses are common at the East, as well as at the West, it may be useful to point out the difference between the two by engravings showing a single spikelet of each. First, as to the

DARNEL, *Lolium temulentum*, called "Chess" and "Cheat" in California. Fig. 1 shows a single spikelet; it sits close upon the stem, just as a spikelet of wheat does, but with the difference that this stands with its *edge* towards the stem, while wheat presents its flat side. The engraving shows one of the spikelets, and a single joint at the stem, which is hollowed out to receive it. Most grasses (and grains) have at the base of each spikelet, two empty chaffy scales (glumes) within which are the grains, each enclosed by its two pieces of chaff. In Darnel, there is but one of these chaffy scales (*a*), the other is wanting. Its position and structure distinguish *Lolium* from any cultivated grain.

Fig. 1.

CHESS, *Bromus secalinus*, has a very different structure. Its spikelets (fig. 2) are in an open, loose cluster or panicle, like Oats, and are never, like Darnel or Wheat, set down close upon the stem; moreover there are always at the base of each, two empty chaffy scales or glumes (*a*, *a*). The Darnel and Chess are as unlike in appearance as are Wheat and Oats. In Darnel (fig. 1) the spikelets are always close upon the stem like wheat, and in Chess (fig. 2) they are always at the ends of long and very slender branches, like Oats.

Fig. 2.

Darnel has had for generations the reputation of being poisonous, and has long been pointed out as an exception among grasses. Its specific name, *temulentum* (drunken), perpetuates this idea. Not many years ago an English experimenter took the trouble to eat only bread made, at first, with flour ground in part from Darnel, and finally he partook of only pure Darnel-flour bread, and claimed that he experienced no inconvenience whatever. Chess is such a common weed, and occurs in wheat-fields so unexpectedly, that many believe that wheat turns to chess. A belief than which, to one familiar with the structure of grasses, nothing can be more improbable or absurd.—N. B.—This need not be answered by assertions. When specimens are produced part wheat and part chess, we will consider them. The last that came, claiming to show the transformation were, in the presence of several witnesses, put under the hydrant to wash the earth from the roots; as soon as the roots were clean, they separated. A seed of chess and one of wheat had started both close together, but their roots were as distinct as if they had grown a mile apart.

## Important Experiments.

### The Old Theory of Dew Contradicted—Relations of the Soil to Water and Cultivation.

Prof. Levi Stockbridge, who himself gave the money a year ago for establishing the Massachusets Experiment Station in connection with the Agricultural College at Amherst, has been making some interesting experiments at great expense of time and labor, that are of value and importance to agriculture. The results are so contrary to the universally received ideas that they are quite sure to make something of a stir among scientists and agriculturists generally, as they have important bearings on many questions of cultivation and of plant growth. Prof. Stockbridge has found that the soil and plants at night are *warmer* than the air, though heretofore the reverse has been held. This contradicts the theory that "dew" is the condensation and deposition of moisture from the air by contact with the supposed colder soil. This fact and others are brought out in the following abstract of the results of the investigations from advance sheets of the report of the Experiment Station, which we are the first to publish.

### Temperature of Air and Soil.

There were over 700 observations on the temperature of the air, and of the soil of a lysimeter, day and night, taken at the coldest part of the night, and warmest time of day, varying with the season, and covering the period between May 23d and Nov. 30th. The average day temperature of the air for the period was 72.940°, and that of the soil 72.061°. The average temperature of the air at night was 49.664°, and that of the soil 56.370°. These are remarkable figures, showing the soil in the day time to correspond almost exactly with the air in temperature, and over 6° *warmer* at night. These night observations were made before daylight in the morning; others were also made at 10 P. M., to test this question of difference between air and soil. The result was that the average difference was almost identical; in the former case 6.705°, in the latter 6.130°. Still other observations were made at odd times over a range of country 4 miles in extent, and in all kinds of soils:

| *Description of Soil.* | *Temperature.* Air. | Soil | *Date.* | *Hour.* |
|---|---|---|---|---|
| Garden soil | 49 | 50 | June 11 | 4 A. M. |
| Grass land recently mown | 49 | 54 | " " | " " |
| Grass land, crop standing | 49 | 54 | " " | " " |
| Garden soil | 44 | 48 | " 12 | " " |
| Grass land recently mown | 44 | 54 | " " | " " |
| Grass land, crop standing | 44 | 54 | " " | " " |
| Wet peat swamp in grass | 43 | 53 | " " | " " |
| Wet peat swamp, no grass | 42 | 51 | " " | " " |
| Garden soil | 58 | 60 | " 16 | " " |
| Grass land recently mown | 58 | 62 | " " | " " |
| Grass land, crop standing | 58 | 62 | " " | " " |
| Gravelly knoll in grass | 58 | 64 | " " | " " |
| " " tilled | 58 | 60 | " " | " " |
| In heavy clover, soil | 50 | 59 | " " | " " |
| Grass land north of building | 60 | 64 | " 28 | " " |
| Wet clay | 60 | 63 | " " | " " |
| At brook-side in mud | 59 | 62 | " " | " " |
| Wet grass near river | 66 | 71 | July 1 | 2:30 A. M. |
| Sandy loam in grain | 66 | 70 | " " | " " |
| In a dense forest | 67 | 66 | " " | " " |
| Turf outside of woods | 66 | 70 | " " | " " |
| Wood land on hill side | 66 | 66 | " " | " " |

The average of the soil temperature was 66.13°, of the air, 60.75° showing a higher average temperature for the general soil of the vicinity than in the lysimeter. In only one instance was the air warmer than the soil, viz.: in a dense forest, and on a night succeeding a day when the thermometer had stood at 102° at 2:30 P. M., and the air at night was remarkably still. Then a regular system of observations was taken on the 5th, 16th, and 26th

of Aug., Sept., Oct., and Nov., on Dry cultivated land, Wet cultivated land, Dry grass land, Wet grass land, and Forest soil, at 3 to 6 stations in each case, and at from 4 to 5 o'clock each morning; in this series numbering nearly 900. In each case the temperature was taken of the air, the surface soil, and at 5 inches deep. The results confirmed those previously obtained, being even *more* remarkable.

From Aug. 1st to Dec. 1st, the soil at 5 inches deep averaged 12.345° warmer than the air. It has heretofore been taught that wet soils are cold, as compared with dry, from which assumed fact important conclusions have been drawn; but this long series of observations prove the contrary. Practically, at the depth of 5 inches the temperature of wet and dry soils is the same. "The day temperature of the dry soils is higher than the wet, and the diurnal variation greater; but the equality of temperature at night indicates pretty clearly that temperature is by no means the only factor to be considered in discussiug the condition and improvement of wet land."

### The Temperature of Growing Plants,

as compared with the air at night, was the subject of over 100 observations from June 14 to September 5, on a great variety of plants and different parts of the same plant. To take the temperature of grasses and similar plants, a bunch of the leaves and stems are tied together late in the afternoon, and a thermometer inserted in the center at 4 o'clock the next morning. For plants having thick stems or leaves, these were pierced with a steel rod, and the bulb of the thermometer inserted in the cavity. Though there was often no difference between the temperature of the plant and the air, in no case was the air warmer than the plant, and in many the plant was the warmer. We quote a few examples in the following table:

| | | |
|---|---|---|
| June 14. | Bunch of rapidly growing white clover. | 58° air 57° |
| July 14. | Center of growing corn-plant | 69° " 68° |
| July 14. | Center of growing clover-stalk | 69° " 68° |
| Aug. 6. | Center of bunch of purslane | 68° " 68° |
| Aug. 14. | Center of corn-plant | 60° " 58° |
| Aug. 14. | Apple on the tree | 57° " 57° |
| Aug. 14. | Pumpkin rind | 57° " 56° |

The plants averaged nearly 1½° warmer than the air.

### Where Does Dew Come From?

The general belief is that the soil obtains water from the air at night by absorption and condensation, to such an extent as to be of the "utmost agricultural value," and that in times of drouth this moisture of the air invigorates and sustains plants which otherwise would perish. The observations of Professor Stockbridge show the soil, from May to November, both at the surface and 5 inches deep to be warmer than the air, it is hardly possible that the moisture on the surface in the morning was deposited from the air. A more reasonable conclusion is that the vapor which rises from the surface is condensed as it comes in contact with the colder air. The phenomenou of so-called "dew fall" is usually attributed to the supposed fact that soil and plants are colder than the air at night, and so condense its moisture in the form of "dew." The "dew" on the ice-pitcher is the common illustration to prove the theory; but as we have seen, the conditions in this case are the reverse of those with soil and plant, which are both warmer than the air at night, while the ice-pitcher is colder. Further investigations were made in the study of this question. A tin-box, without top or bottom, was filled with soil and placed in growing grass; the next morning the grass was loaded with dew, but not a trace appeared on the box, and the temperature of the soil was 66°, and of the air 60°. This experiment was repeated many times with the same results. Then a loose tin cover was placed on the box (fig. 1); in the morning the top of the cover was *dry*, but the under side (fig. 2) was "thickly studded with drops of water"—dew.

If the theory of the absorption of water from the air by the soil is correct, then a given bulk of soil would be heavier in the morning than the previous evening. To test this question, two boxes, each holding one cubic foot, were filled with soil without disturbing it; one with loam, the other with peat. These were placed in a trench with their tops level with the surface of the ground, exposed to all weathers, and their weights taken night and morning. The result was a *loss* in weight for each box every morning but 5 out of 17; in the 5 cases there was neither gain or loss. Figure 4 shows a double walled tin-can, of which fig. 3 shows the inside; it is one foot square and bottomless; the spaces, *A*, *A*, contain ice-water to cool the air and condense the vapor in the space, *B*. *C* is a gutter to catch the water collected on the inner surface, and conduct it by the rubber tube into the jar, *E*. The following table shows the results:

| Date. | | Humidity of air inside. | Total water inside. | Total water collected. | Rate per acre. | Temperature of air outside. | Temperature of soil. | |
|---|---|---|---|---|---|---|---|---|
| | night. | pr. ct. | grains. | gr's. | barrels. | | | |
| July | 8 | 82 | 0.1555 | 2.55 | 8,950 | 70° | 75° | (1) |
| | 9 | 96 | 0.3045 | 19.22 | 70,941 | 76 | 79 | (2) |
| | 10 | 95 | 0.2786 | 33.06 | 122,216 | 76 | 79 | (3) |
| | 13 | 92 | 0.2267 | .445 | 818 | 70 | 74 | (4) |
| | 15 | 82 | 0.1555 | 13.05 | 48,364 | 63 | 74 | (5) |
| | 16 | 86 | 0 1684 | 17.43 | 64,745 | 65 | 72 | (6) |

*Remarks:* (1). Leak at tube. (2). Soil wet by heavy rain previous day. (3). On garden soil recently hoed. (4). On a board. (5). On dry sandy land. (6). On grass land; grass under vessel wet with heavy "dew," and but little outside.

The large amouut of water collected by this apparatus, as well as the other experiments, shows that evaporation from the soil goes on at night, the same

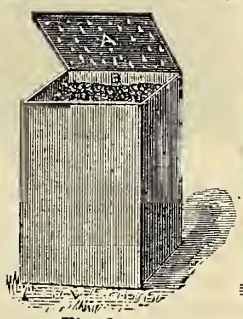


Fig. 2.

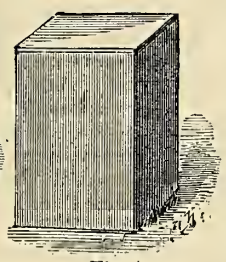


Fig. 1.

as in the day time. These various observations and experiments teach that the soil does not absorb water from the air at night, or receive it by the deposit of "dew;" on the contrary, they teach that the "dew" is vapor evaporated from the soil and condensed when it comes in contact with the colder air. The striking phenomenon known as "ground fog," is further corroboration of this. It is a sheet of mist from a few to many feet in thickness, seen at night when the air is still, and always over wet land or water. The surface beneath the fog is many degrees warmer than the air, and contains vastly more water. Its abundance and warmth cause rapid evaporation of vapor, which is condensed and made

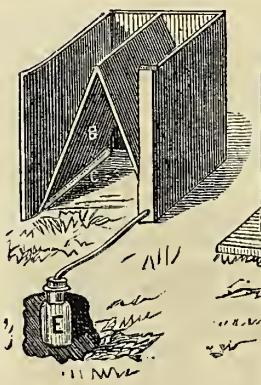


Fig. 3.

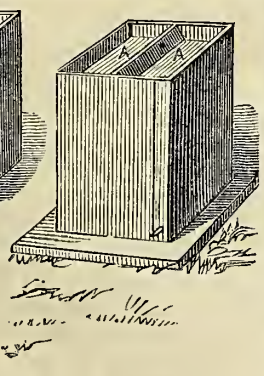


Fig. 4.

visible by the colder air.—Further experiments on evaporation of water from plants, in connection with the above observations on temperature, others showing the relations of the soil to water and fertilizers, and the practical deductions from the experiments are reserved for another number.

**American Produce Abroad.**—At the fall dairy shows in England, American factory cheese took such a prominent position, as to cause the London "Times" to say that it was driving "English Cheddar's out of the market." Be it understood that English Cheddar cheese is of a similar grade to the American factory product, and is the main reliance of the English market. A prominent American gentlemen writes from Vienna, that the prospects of this country as viewed from abroad, promise an era of great prosperity, because we are finding a market in other lands for so much of our produce: horses, cattle, dead meat, butter, cheese, grain, and manufactured goods. The larger proportion of animal products we can ship abroad the better, for that means that we are feeding grain, and thereby saving the fertility of our farms. For, as we have shown in various articles, the land is more exhausted by selling grain, than by feeding it and selling meat, butter, cheese, etc., and by the latter course we get two prices for the grain; one in the product sold and one in the manure.

## Amber Sugar Cane.

Readers of the *American Agriculturist* will remember that we planted five acres of the "Amber Sugar Cane" last spring, and that the cold, wet storms so injured it that the piece was plowed up and sowed to turnips. (This root-crop fully paid the expense of the experiment). A small patch in one of the fields was left, and as the warm weather of July came on, it grew with great rapidity, in the course of the season attaining eight to ten feet in hight. At maturity the cane was cut and sent to the cane mill at the Massachusetts Experiment Station. The product was a superior quality of syrup, nice enough for any table. Experiments by others in the Eastern States were similar in result to this, some or them succeding better on account of less rain during the month after planting, and a warmer soil. In the West the "Amber Cane" has proved more of a success, perhaps from more experience in growing sorghum, of which the "Amber Cane" is only an improved variety.

Last season's result in our own experience and that of others indicates that the "Amber Cane" may be a profitable crop, both West and East, under proper conditions of soil and cultivation. In numerous cases the yield is reported as high as 200 gallons per acre, and in some cases, 300 gallons. It is stated that sugar is easily obtained from this cane at mills in the West, and that it is a profitable part of the manufacture. In the investigations at the Mass. Experiment Station, a considerable proportion of *grape sugar* was found in the juice, which is less sweet than *cane sugar* in general use in families, and is chiefly obtained from Indian corn (the grain) and is worth only one half the value of cane sugar. Less of this undesirable "grape sugar" was found in the juice from fresh cut cane, than from that which had lain some time before being ground. It is hoped that improved culture and manufacture will increase the percentage of cane sugar, which appears to be already done by Western cultivators.

The requisites for success with this crop in the field are: a light dry soil, cultivated at least one year previous, thoroughly pulverized by plowing and harrowing, and made fertile by previous manuring, or the application of well decomposed manure or artificial fertilizers, similar to those used for corn; planting the seed early, and covering it not over one half inch deep; thorough after cultivation, and keeping the soil light and entirely free from weeds.

The main reason why a crop like this is so profitable, after the details and difficulties of cultivation and manufacture are understood and overcome, is, that it makes no draft upon the resources of the farm as the constituents of the syrup or sugar are obtained from the air. The pulp from the mills is composted to make manure to return to the soil; the leaves make excellent fodder, and the seeds are said to be equal to oats for use as food.

**Breeding as an Art.**—Prof. Manly Miles, in his recent book on "Stock Breeding," calls attention to the fact that no previous work has been published, that contains in a convenient form for study and reference, the known rules and principles of the art of breeding, notwithstanding the fact of the great importance and vast extent of the live stock interest. The acknowledged first principles of

breeding are the same now as when it began to receive the attention of thinking agriculturists, and these are, "like produces like," and "breed from the best," though to-day these empirical expressions have such extended applications that they are hardly recognizable in their changed forms. The critical study by Bakewell and his followers, of the form and proportions of animals and their relations to the most desirable qualities, have produced a variety of improved breeds of remarkable excellence, each differing from the others in the particular characters that adapt them to special conditions and purposes. Bakewell regarded live stock as machines for converting the vegetable products of the farm into animal products of greater value, and to do this, to breed such animals as will "convert the largest amount of food into animal products of the best quality, with the least possible waste of material," is what a knowledge of the art of breeding leads to when carried into practice on the farm.

## Among the Lumbermen and Iron Miners of Lake Superior.

The route of tourists to the Lake Superior regions has generally been by water, taking in Marquette and other points along the shore. We, however, have come from Chicago to Ishpeming (the center of the iron mines), by rail, and found many most interesting places by the way. As we left Green Bay, the air was fairly filled with flocks of ducks of every variety which gather in the adjacent waters during the autumn months. Though we did not tarry to test the sport, it appeared as if there must be fully as good shooting here as in Currituck Sound, North Carolina, which I have found in former days a perfect paradise for duck-shooters. A few miles further on, the train halted in front of the ruins of the Gardiner House at Pensaukee. The terrible cyclone of 1877 unroofed this large hotel and destroyed it, together with about every other building in the place. Houses were lifted bodily and carried to a distance of several rods. A buggy was hoisted from an adjoining shed and landed in the second story of the Gardiner House. Horses, cattle, and other animals were blown about through the air like sheaves of straw. Buildings not prostrated, were covered with a coat of mud from the river-bed

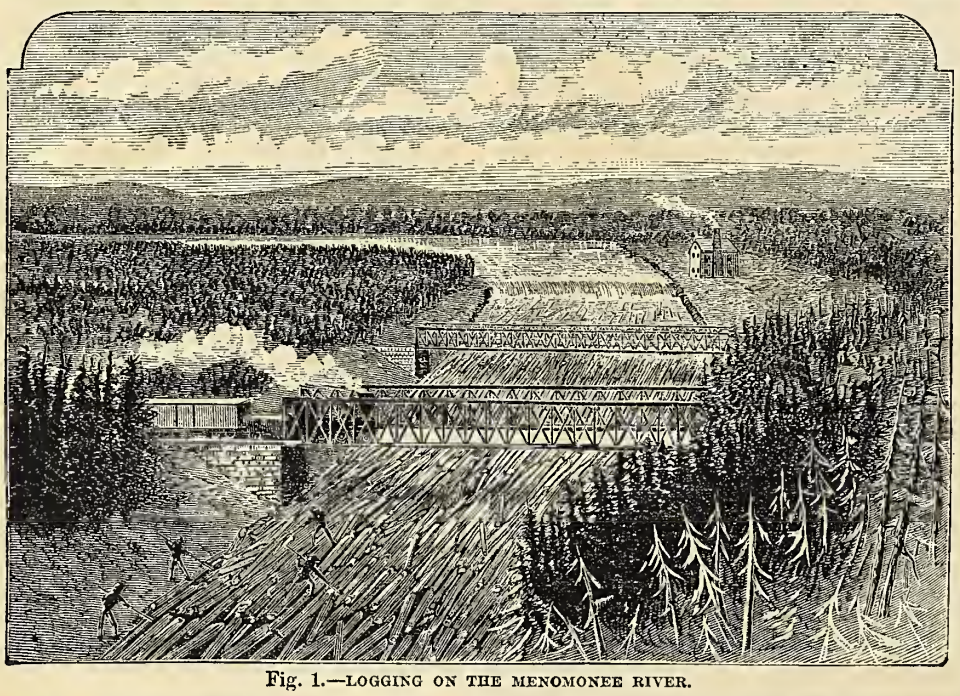


Fig. 1.—LOGGING ON THE MENOMONEE RIVER.

some distance away. This terrible cyclone mowed everything before it like a scythe, and will, for many years to come, constitute an important topic for conversation in all this country. Twenty miles further, we reach Peshtigo. In 1871, when the great fire was raging in Chicago, this village likewise became a prey to the devouring element, and 800 out of a population of 2,500 were burned to death. For a time there was seemingly no escape for any one, as all the surrounding forests were on fire. Many took refuge in the Peshtigo river running near by; but the heat of the flames was so intense as to render the river uncomfortable. The village has since been considerably rebuilt. The houses are all small, giving the place an inferior appearance. A ride of ten miles further, brought us to the Menomonee River, which is the border line between Wisconsin and Michigan. We were now in the midst of the lumber region. The river was full of logs, piled one upon another, and presenting a novel sight; the scenery on both sides is of a wild romantic character. The engraving, fig. 1, gives a view of this interesting river. These logs are cut in the forests above, and floated down to the mouth of the Menomonee, where there are eleven saw-mills, with a combined capacity of 1,300,000 feet in twelve hours. Groups of lumbermen now began to come aboard the train. They are large, stalwart fellows, and in their general make-up, present a very picturesque appearance; most of them wore heavy woollen pants of a fiery red color, and woollen shirts of a dark-blue. Their heavy boots have large nails projecting from the bottom, which often are very annoying to the conductors, as they sometimes fairly plough up the bottom of the cars. These nails enable the lumbermen to pass from one floating log to another without difficulty. They generally travel in squads in going to or from the lumber districts. They sometimes are rude and boisterous, and have, on more than one occasion, endeavored to take possession of a train of cars. Now, however, the conductors are clothed with the powers of sheriff, and for this reason are able to hold the unruly spirits in subjection. Some of these lumbermen work in the pine forests in winter, and go as sailors upon the lakes in summer. They will remain isolated for a whole season in the pine woods, and then going out to Green Bay and other places, squander the earnings of months in as many days. There is an abundance of game in this region, and it is not an uncommon thing for deer to be seen from the train. One of the engineers, who always carries his rifle with him, kills many of them every season. It is an interesting fact that while deer run so rapidly from an approaching hunter, they will stand and look at a passing train as if dazed by the sight. They appear to have an extraordinary curiosity which every one has observed in the antelope when hunting them on the western plains. The Big

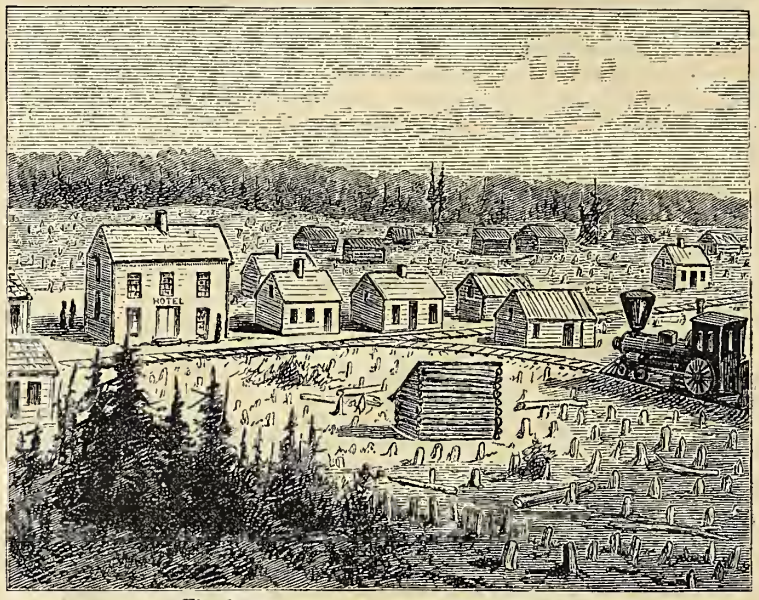



Fig. 2.—MENOMONEE JUNCTION, MICHIGAN.

Cedar and the Escanaba rivers each offer great inducements in the way of fishing. The Escanaba flows a long distance through a wilderness and abounds in trout and other choice fish. It is customary for parties to go north on the railroad for some miles, conveying their skiffs to the head-waters of the Escanaba, and then idly float down stream day after day, being carried by the current, shooting and fishing as food is required. This, I am told, is one of the most charming trips in all this northern country. The road now runs through a stretch of pine forests for a distance of over 130 miles. Some twenty miles from Menomonee River, we arrived at Menomonee Junction, figure 2, which consists of slab and log houses. So dense is the surrounding forests that one would be lost should he venture a few yards from the Junction. As our train came in, another, laden with ore, arrived over the branch road, and for a few moments this isolated settlement in the heart of the Michigan pine forests, presented a scene of decided activity. We were now in the iron regions, and the branch road which the Chicago and North Western Railroad has constructed, runs westward a few miles to the recently developed and valuable Menomonee iron regions. Going north a few miles further, we reach the village of Escanaba, near the Big Bay de Noquct. From here, the railroad track, consisting of steel rails, runs in a straight line for thirty miles. Escanaba is the shipping point on Lake Superior for the iron ore brought from the mines around Ishpeming. From sixteen to twenty-five trains daily pass over the road, each train numbering fifty-five cars, and each car carrying seven tons of ore. Some times the number of the trains runs up from thirty to forty. The ore, after reaching Escanaba, is then shipped over the Lakes to Cleveland, Ashtabula, Pittsburgh, Buffalo, New York, and other points. Coming on now to Ishpeming, we find a flourishing mining city of several thousand inhabitants, where eight years ago there was nothing but a swamp. Here are large hotels, school-houses, stores, and churches of several denominations. Within a radius of eight miles one can see twenty different iron mines; and within almost a stone's throw of the hotel, are several of the most valuable of them in active operation. While among the mines around Ishpeming, the Superior mine is the most valuable, the New York mine, belonging to Mr. Samuel J. Tilden, is perhaps the best known to the public.—In a future article these and other mines of this interesting region will be described more at length.

## The Flowering Spurge.
*(Euphorbia corollata).*

Among the great number of our native plants figured and described in the *American Agriculturist*, the majority have been recommended for cultivation by the amateur who grows plants for the love of them, and looks for no other return for his labor than the gratification he derives from seeing the plants flourish as well as,and often much better than they do in their wild localities. The present, the Flowering Spurge, is one of the few natives that, intense scarlet color. It is for these brilliant upper leaves—or bracts, as the botanist calls them—that large numbers of these plants are cultivated by our florists, as they are specially in demand for holiday decorations. In other greenhouse species, the involucre or flower-cup itself is showy, being furnished with large petal-like scarlet appendages or lobes, which make it very closely resemble a real flower. In our native Flowering Spurge, *Euphorbia corollata*, these appendages are of the purest white, and the plant appears as if it bore a cluster of small white flowers, while it is really a mass of very showy flower-cups, inside of which the real, but is likely to become popular among florists and those who grow flowers for cutting. While we have no doubt that the Flowering Spurge will prove a valuable plant to force for cut flowers in winter, we shall not advise its use until we see the results of experiments now being made in this direction. We have mentioned that the pistillate flowers stand out beyond the involucres ; as these are green and unsightly, they much detract from the appearance of the cluster, and they should be picked off when used for bouquets, etc. We are glad to see that this very handsome native plant is offered by dealers, though some of them make a mistake in claim-

FLOWERING SPURGE.—(*Euphorbia corollata.*)

SPREADING BELL-FLOWER.—(*Campanula divaricata.*)

in the language of the trade, has "money in it," as it is one that may be grown by florists as a source of profit from the sale of its flowers. The genus *Euphorbia*, is a large one, there being over 700 species which are widely distributed ; those found in temperate climates are herbs, often small and inconspicuous, while in tropical countries they are shrubs and even small trees, some of which are very thorny and of grotesque habit. Without going into the details of structure, it may be said that the flowers are exceedingly simple, having neither calyx nor corolla ; the male flowers consist of a single stamen with a small scale, and the female flowers of a single pistil upon a long stalk. Several of these simple staminate flowers and one pistillate flower are placed together in a sort of a cup or involucre, which hides the stamens, but the pistil, having a long stalk, stands out beyond the involucre, as shown in some of the lower flowers in the engraving. This involucre, which passes for the flower, contains a whole cluster of very simple flowers. Though the flowers themselves are not showy, it is often the case that the parts surrounding them are very much so. One of the most brilliant plants of our hot-houses is an Euphorbia,popularly known as *Poinsettia,* the leaves which surround the heads of involucres of this, are of the most minute flowers are hidden, though in time the pistillate flower shows itself above it. Our plant is found from New York westward and southward ; it is abundant in the pine-barrens of New Jersey, and in similar localities to Florida. It has a large branching perennial root, which sends up several stems 2 to 3 feet or more high ; the leaves upon the stem are scattered, without foot-stalks, and of the shape shown in the engraving ; at the top of the stem are several branches, and these branching again form the umbel-like flower cluster, at the base of which is a whorl of several leaves. The showy involucres are given in the engraving of the real size. As with other *Euphorbias*, all parts of this plant contain a milky juice which flows freely whenever a portion is cut or broken. The dried root has been more or less used in medicine, especially in the Southern States, where it is known as Wild Ipecac ; it acts both as an emetic and cathartic. The Flowering Spurge is an excellent border plant, as it produces its abundance of—what in this sense we may call flowers—in July and August, and they last until October and November. The white petal-like lobes do not readily wither, and on this account the flowers are very useful for bouquets and floral decorations ; small, white, lasting flowers are always in demand for such purposes, and the plant ing that it is new. That enthusiastic cultivator, the late Joseph Breck, in his "Book of Flowers," published a quarter of a century ago, and in his later capital "New Book of Flowers," speaks of it as a "most excellent species," while it was figured and commended as long ago as 1819 in "Loddiges' Cabinet," and Duchatre states that it was introduced into the French gardens in 1803. Nevertheless the plant in the sense of being little known, is new, and we are glad that the dealers offer it, as it allows those who cultivate herbaceous plants to add a most useful one to their collections.

## The Spreading Bell-flower.
*(Campanula divaricata.)*

The Bell-flower genus, *Campanula*, with its over 200 species and varieties, includes plants which, while they agree in structure, present a wonderful variety in habit, size, and general appearance. In size of flowers there is a great range, from some of the improved forms of Canterbury Bell, with flowers as large as a hen's egg, to our little Spreading Bell-flower with "bells" scarcely a quarter of an inch long. This species, *Campanula divaricata*, is a native of the mountains of Virginia and southward;

it has a perennial root from which arise the stems which are much branched and form a bushy mass 2 to 3 feet high, and about as broad; the lower leaves are lance-oblong, the upper are narrower, and all more or less coarsely-toothed. The stems are terminated by a broad, much branched, compound panicle, which bears numerous small flowers. The engraving gives the upper portion of a panicle or flower cluster with the flowers of the natural size; a cluster of the root-leaves is given below. The flowers are pale-blue and though individually very small, they are produced in such numbers that the effect of the whole mass is exceedingly graceful and pleasing The projection of the style beyond the corolla gives the flower an appearance greatly unlike that of most Bell-flowers. Blooming in July and August and continuing later, it makes a welcome addition to our summer blooming plants, especially as blue flowers at that season are by no means abundant. The Harebell (*Campanula rotundifolia*), quite common in the northernmost States and in the mountains farther south, has a bright blue corolla three-fourths of an inch long, and is altogether such a neat and graceful plant that those who have access to it in its native localities, should not fail to introduce it to their gardens.

## Tree Planting—The Ailanthus.

Suppose this problem were given: "I live in a tree-less country, where, excepting the cottonwood along the rivers, there is no woody vegetation other than shrubs. I have some good land that must be put into crops, I have some poor land that is not worth cultivating. What trees can I grow upon this poor soil, and at the least expense for a start. I need wood for fuel, rails for fences, poles for making straw shelters, and later I shall need useful timber for building and other purposes. What will best meet my present and future wants with the least present outlay?"—This is not quoted from any one letter, but is the substance of various inquiries that have been put in one way and another, by those who have settled in tree-less localities and would supply themselves with wood as rapidly as practicable with the least possible outlay, or have land that is better suited to tree culture than to any other use. Some 12 or 15 years ago, we gave it as our opinion that the best single tree for persons thus situated, was the *Ailanthus*—a much abused tree, and one with which we have much sympathy, for we have been roundly abused for recommending it. Years have gone on, and no better substitute—one meeting all the conditions—has been proposed, and we have seen no reason to regret our advocacy of this tree, as we still hold that, *under certain circumstances*—mind not for *all* localities and conditions—it is the most useful tree of which we have any knowledge. Our setting forth of the good qualities of this tree has been met by just two objections—1st, its foliage smells badly when bruised, and 2d, the tree gives off a most offensive odor when in flower. A pig is not especially desirable as a household pet, yet we have never heard its general utility questioned on that account. We have not recommended the Ailanthus to be made into bouquets, and its leaves need not be handled. Nor have we advised that it be planted as a lawn tree, but as a crop, in plantations that are likely to be at a distance from the house, and there is no reason why sensitive persons should go near it during the few days that it is in flower. Aside from these most trivial objections, everything else about the tree is in its favor. Having advocated the claims of the Ailanthus so long with so little support, it was with no small pleasure that we read a paper upon the uses of the tree, presented to the Mass. State Board of Agriculture, by one of its members, Prof. Chas. S. Sargent, Director of the Botanic Garden and the Arnold Arboretum of Harvard University. In the capacity of Director of the Arboretum, as well as through his membership of the State Board, and of that venerable body, "The Massachusetts Society for the Promotion of Agriculture," he has warmly advocated the importance of tree culture, and has, by suggesting premiums, by offering facilities to experimenters, and supplying the necessary instructions, given a greater impetus to tree culture in Mass., and through that to New England, than all other agencies combined. Many of the inquiries about tree-planting might be answered by referring the writer to Prof. Sargent's article, were the report containing it generally accessible. As it is, we propose to give the essential points of his paper, in this and a subsequent article, with such additions of our own as may be to the point. We regard the objections that have been made to the tree as altogether too trivial for serious consideration, and having stated them, feel sure that no one will allow them to stand in the way of planting the tree, if that is shown to be desirable. Leaving the raising of the trees, and making a plantation, to another time, we give a summary of what Prof. Sargent says of the value of the timber. Firstly

### The Ailanthus as Fuel.

The specific gravity of wood is a fair indication of its value for fuel (and to some extent for other uses also). Several samples of Ailanthus wood from trees grown in New England being tested, the average specific gravity was found to be .614. This is lower than that of Hickory, San Domingo Mahogany, and White Oak, and much above Black Walnut, Honduras Mahogany, Canoe-Birch, and Wild Cherry, these being the woods commonly employed for cabinet-making, or as fuel. It is only seven per cent lighter than White Oak, while Canoe-Birch is fourteen per cent lighter than Ailanthus. Our own experience agrees with that of

A FINE HOUSE PLANT—THE INDIA-RUBBER TREE.

Prof. Sargent, who finds it a pleasant and lasting fuel, burning without snapping, leaving a good bed of coals and very little ash. When we consider the rapid growth of this tree, the specific gravity of the wood, and consequent value as fuel is something remarkable. This joined to the fact that such valuable fuel may be produced on the very poorest of soils, give the Ailanthus a high rank among useful trees. One of the important uses suggested for the Ailanthus, where no other tree can grow, is that of

### Fixing Drifting Sands.

Not only upon the sea-coast upon both sides of the Continent, but along the inland lakes and other localities, blowing sands are a great annoyance. Near Odessa, on the Black Sea, where experiments were made upon a large scale, the Ailanthus was found to be by far the most serviceable tree for retaining these sands, and large tracts were planted with complete success. It will interest many living in such localities to know that the Ailanthus will not only live, but really flourish in such sands, and that it will endure the sea air, and soon prepare the way for the planting of various other trees.

## The India-rubber Tree.—(*Ficus elastica.*)

A letter from a friend asking how to prune his India-rubber tree, and our reply, to not prune it at all, remind us to say a word in favor of the beauty and utility of this plant in window gardening. We are aware that it has one fault—in the eyes of many a great fault—it does not bloom. Just here we may say that our people will never enjoy window-gardening until they get over the notion that every plant must flower. Most of those who attempt window gardening start with the idea that they must have flowers, and fill their windows with geraniums, roses, carnations, and other things which should bloom, but rarely do so until towards spring. We were specially pleased with the Rev. Dr. Johnson's book on window gardening, because he called it "Winter Greeneries at Home." That expresses what those who would cultivate window plants must aim for—winter greeneries. To one of taste there is more satisfaction in one healthy plant that presents a fine outline of beautifully formed, dark green, vigorous foliage, than in a whole windowful of subjects struggling into a weakly bloom. The number of plants that, under ordinary treatment, will flower in windows, is not large, while those that give beauty of foliage are many. Green of any kind in winter is cheerful, and doubly so when it is the robust, shining green of a healthy India-rubber tree. This has, even when small, a dignity, not to say majesty, of port, an expression of vigor shown by few other plants. Each leaf is an object of beauty; in vigorous specimens they are a foot long—with a dark, polished upper surface that is most pleasant to look upon. The coming of a new leaf is an event worth watching. At first it is enveloped by a delicate sheath (*stipules*), and this of itself, being of a crimson color, is as handsome as some flowers; this sheath at length falls away, and the new leaf unfolds, a wonder of beauty and freshness. A young and vigorous specimen like that in the engraving, is a window garden of itself. But the plant is one that bears abuse, and will tolerate any treatment provided it is not frozen. It will do better at the window, but will hold its own if used to decorate an apartment or hall, away from abundant light. After making the house cheerful all winter, it may be put outside, when warm weather comes on, and stand as a solitary specimen upon the lawn, or be combined with other sub-tropical plants to form a group. For the best effect it should be kept to a single stem; if it branches above, let these branches grow until long enough to make cuttings, when they may be removed to be rooted to keep up a supply of young plants. The botanical name, *Ficus elastica*, indicates that it belongs to the same genus with the Fig. It has a similar fruit to the Fig, but belongs to an evergreen section, of which some botanists make another genus. Like its allies it has a milky juice, which in this is so copious that it is collected, and, when dried, it forms the India-rubber of the East Indies. The South American product comes from a number of different trees. While this is an India-rubber tree, it is by no means *the* India-rubber tree.

## Foreign Horticultural Items.

DO LEAVES ABSORB MOISTURE?—This has been under discussion for the past century and a half, and the weight of authority seemed to indicate that they did not. But just now the question is re-opened by the Rev. Geo. Henslow, in a paper read before the Linnæan Society (London), on Nov. 7th last. Mr. Henslow thinks that his experiments, extending over several years, prove that not only do leaves absorb water, but that they also take up whatever nutriment may be dissolved in the water.

AKEBIA QUINATA.—This has long been a prime favorite with us. Its neat foliage is almost evergreen, and its flowers, while not showy, are curious, and of the most exquisite fragrance. We were surprised to read in a recent "Gardener's Chronicle" (London), that when trained to a trellis "it should be afforded the protection of a mat in winter." When we first saw this plant, some 30 years ago, it

was employed as a greenhouse climber, and perhaps our English friends have not learned how hardy it is. We have a plant which, near New York City, has stood the winters of the past 12 years—and in that time there have been the most fatal seasons of the past half century—without a particle of injury. At South Amboy, in New Jersey, on one of Mr. Geo. Such's houses, is the largest specimen that we know of; this is in a place exposed to ocean gales, yet runs to the top of a large two-story house and is most luxuriant. We do not know of a finer *hardy* climber than *Akebia quinata.*

OBSTINACY.—The French journals, the editors of which know nothing of the Colorado Potato Beetle, will persist in calling it *Leptinotarsa decemlineata,* while our entomologists, who have not only studied the entomology, but the etymology of the pest, know that it is *Doryphora* and nothing else.

LIBERALITY OF THE JAPANESE.—The fine collection of rare and peculiar Japanese plants shown at the Paris Exposition have been given to the *Jardin des Plantes,* where they will be multiplied and distributed among various cultivators free of cost.

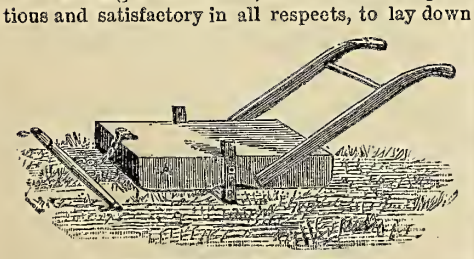
## "Everybody's Flower" The Chinese Primrose.

A recent English author calls the Chinese Primrose "Everybody's Flower," and when we are told that one house alone sends annually 10,000 pots of this plant to the London market, we must admit that it is exceedingly popular. Why should it not be as popular in this country as there? We know of no plant for an ordinary window that, if managed rightly, will be more sure to give flowers. Notwithstanding this, we rarely see it in window gardens. Its leaves are handsome, its flowers, white and of various shades from light rose to full crimson, are varied as to size and margin, are both single and double, and bloom in great profusion for a long time—nearly all winter. They are easily raised from seed, but as those for winter flowers should be started in spring, it is too late to talk about that. Plants may be had at low rates of the florists, and we do not know how a lover of flowers can get better returns for a small outlay, than to procure some Chinese Primroses, single or double. The single have broader flowers as a general thing, and we would advise the novice to select them. One thing is essential to success: procure the plants before they have been subjected to greenhouse treatment, and all the better before the buds, if formed, have made much progress. If the plants have been started into growth in the warm and moist atmosphere of the greenhouse, and the buds are well developed under these conditions, when taken to the atmosphere of an ordinary room, the buds will be sure to blast; the flower cluster will grow, and the large calyx make a show, but the corolla within will be found shriveled and useless. By observing this precaution, and selecting plants that, if they show buds at all, have them in an undeveloped state, and hidden close down at the base of the leaves, they will, with the most ordinary care, give an abundance of bloom, and make good their claim to be "Everybody's Flower."

## A Useful Sod-Cutter.

BY L. D. SNOOK, YATES CO., N. Y.

For making a small lawn, it is far more expeditious and satisfactory in all respects, to lay down



HOME-MADE SOD-CUTTER.

turf, if it can be procured, and even where the surface is too large to be turfed, sods are almost indispensable for those portions bordering upon roads or paths, as well as for the outlines of such beds as may be made in it. The usual method of cutting turf is to lay down a board of the desired width; the operator, while standing upon the board, cuts down on each side of it with a sharp spade. Then lifting an end of the strip with the spade, one person rolls the turf, while another, with the spade, cuts away the long roots that penetrate the soil below. A roll made of a strip 12 feet long is as large as two persons can conveniently handle. Mr. Snook, whose notions are usually very practical, suggests a sod-cutter made as follows: "The body of the cutter, *A,* is a block of hard-wood, 10 inches thick, 12 to 15 inches wide [12 will be better than wider, ED.], and 3 feet long. The cutter, *B,* is a strip of ¼-inch iron, 3 inches wide, and bent at the ends at right angles to fit the block, as shown in the engraving; one side of this is hammered thin, and ground to an edge, not only along the horizontal part, but for 3 or 4 inches on the turn-up portions. This is then firmly bolted to the block, the distance below it being governed by the thickness at which the turf is to be cut. The lower part of the block, immediately above the knife, is hollowed out to allow the turf to pass easily between the block and the cutter. There is, of course, an arrangement for hitching a horse to it, and a couple of handles, like plow-handles, are attached to allow the implement to be guided. The block may be weighted, if necessary, to keep it down."

## Transplanting Trees in Winter.

It is unquestionably better to transplant trees when small, from the nursery rows, either in spring or autumn. But it is sometimes desirable to move large ornamental or fruit trees from the forest or pasture, or from their place in the orchard or lawn where they have been planted too close. This is best done in the winter, and by the frozen-ball method. Dig a trench around the tree, making the ball of earth two or more yards in diameter, according to the size of the tree. For a tree six or eight inches through at the butt, the trench need not be more than two feet deep, and may be dug at any time late in autumn, or during a thaw in winter. The places to receive the trees are to be prepared beforehand, and furnished with rich loam. When the ground is frozen a foot or eighteen inches, the block of earth can be pried out with levers, put upon a stone-boat, and removed to its new home. A rock-lifter, or stump-puller, is a much more convenient machine to do the lifting and transplanting. If the work is carefully done, there is no risk at all in the removal. The roots are not exposed, and frequently the tree, the next year after transplanting, will make the average growth of wood. This method is particularly desirable in removing evergreens that have been too closely planted, and begin to crowd one another. Valuable trees, six or eight years old may thus be saved that must otherwise be sacrificed. We have frequently moved large seedling pears from old pastures by this means, put on new tops, and in three or four years had them loaded with the finest varieties of pears. In preparing borders for the transplanting of large fruit trees, they should be made extra large and should be well supplied with rich compost, and a barrel or more of bones to each tree. CONNECTICUT.

**Fertilizers for House Plants.**—When a plant is in a bad condition, it is a mistake to apply a stimulating fertilizer. The causes of ill-health are many, but the most general one with those who had no experience in the care of plants is, *overwatering.* Plants, to live, must have water, therefore the more water the better, seems to be the reasoning, and the consequence is starved, nearly leafless sticks in pots of mud. In the majority of cases withholding the water is the one thing needed, and with invalids, a stimulating fertilizer is the one thing, of all others, not needed. When plants are in a flourishing condition and making growth, then fertilizers may be useful, especially if the soil in the pots was originally rather poor. Any of the fertilizers used in the garden would answer for plants in the house, were it not necessary to avoid unpleasant odors, and to consult neatness and ease of application. For hard-wooded, slow growing plants very fine bone—flour of bone—sold by seedsmen for the purpose, is perhaps the best; a few tablespoonfuls being forked into the soil of the pot. For soft-wooded quick growers, a liquid fertilizer may be used. This may be guano, a teaspoonful to a gallon of water; soot, two tablespoonfuls to a gallon, or the Water of Ammonia (Liquid Hartshorn) of the drug stores, an ounce to the gallon. Water the plants with either of these instead of clear water once or twice a week, as the condition of the plant requires. No invariable rule can be given.

# THE HOUSEHOLD.

☞ *For other Household Items see "Basket" pages.*

## Home Topics.

BY FAITH ROCHESTER.

### Catching Cold.—Dry Bathing.

Thin-skinned persons catch cold most easily. Active exercise sets them into a perspiration, and the sudden checking of the perspiration when exercise ceases, causes a cold. Such persons may seldom have severe colds if they learn how to manage them, and perhaps they have less actual sickness—such as interferes with work or pleasure—than persons who do not take cold easily. Flesh brushing during the cooler months lessens the liability to catch cold. A flesh brush is much like an ordinary hair brush, only with a longer handle. I have seen a very good one made of a hair brush with a longer handle attached to it. Habit makes the use of a flesh brush on undressing for bed or on rising in the morning, a luxury and almost a necessity for comfort. A brief vigorous rubbing of the skin promotes its healthy activity and its ability to resist cold.

Cold bathing has been recommended as a preventative of cold, but it has dangers connected with it which dry friction has not. For persons in ordinary health I cannot believe in bathing, except for cleanliness, and water of comfortable temperature answers this purpose best. The cold baths which shock the system and then cause a vigorous reaction (in those strong enough to bear them at all), seems to be objectionable for the same reasons that other stimulants are, used in any cases except in emergencies. They *seem* to increase the strength, but call it out unnaturally only to waste it. But a bath is an excellent thing as a curative agent when one has taken cold, if used judiciously.

For instance, a boy in this family hung out the clothes for his mother one chilly washing day not long ago, and when he came in it appeared that he had been handling the cold, wet clothes bare handed and bare-headed, and he was thoroughly chilled all over. This happened just after a late hearty dinner, and as the chill seemed to increase I was confirmed in my suspicions that he had taken a hard cold. I had him put on his overcoat and sit with his feet to the fire in a warm room until he was thoroughly warmed, and before he went to bed he had a comfortable bath by the fire and a good rubbing; and if there was any "cold" next day, it was so slight that we did not notice it. I have tried the same method of cure for myself when warned by obstinate chilliness that I had taken cold, with excellent success, and I think it much more reasonable than to derange the stomach with any of the popular doses used for colds. Half our colds would be avoided altogether if we would not allow ourselves to get gradually chilled by going with insufficient clothing, or sitting in chilly rooms, allowing an uncomfortable condition of chilliness, because the cold does not actually pinch and sting us. A brief sharp exposure is less dangerous if quickly followed by the proper temperature. This should not be a hot-house atmosphere or a summer climate in our homes. In that case the change is too great from the out to the in-door atmosphere.

### Sleeping in Warm Rooms.

Every winter I see paragraphs in the newspapers recommending this practice, but my own experience and that of my friends, leads to a preference for

cool and fresh night air. I can agree with all that is said about going to bed and dressing in warm rooms —this plan certainly is best when one can accomplish it reasonably, and it is worth trying hard for. But when you are once in bed, well covered with bed-clothing, you have a fine opportunity to ventilate your blood with pure air, and to invigorate the system by cool air that does not chill. Every one should have a habit of sleeping with the mouth shut, and if the hair is thin and the head is cold in the night, a night-cap of cotton or flannel should be worn. Then the cold air does you no more harm than when out walking or riding, and in all ordinary winter weather, even in Minnesota, I am convinced that there is a decided advantage in sleeping with an open window. If you can afford an open fire too, all the better for the ventilation. A fire is sometimes necessary, also, to keep the frost from doing damage by freezing water and other liquids.

### Window-Gardening Overdone.

A few clean, thrifty house-plants are such a cheering addition to a family room, and are capable of affording so many lessons for all, that one ought not to say a word to discourage their introduction, but I am sometimes more annoyed than pleased by my friends' house-plants. The uses of windows are chiefly to give us light in our rooms and to afford an opportunity for looking out. When the cheeriest window in the room is so crowded with plants as to darken the room and to shut out from view the pleasant outside prospect, I think the plants have become a nuisance. The little children, and the children of a larger growth too, need light and sunshine even more than house-plants do, for plants can be put away in the cellar during the winter and children cannot. I look forward to a time when I can have a blooming rose, and a leafy rose-geranium, and a calla and ivy vines to brighten and embellish my rooms, and every fall I speculate upon the subject and decide that I cannot afford to give up to plants my own and my childrens' window privileges. Sitting by our big south window in the family sitting room, we can see far up and down the Mississippi River, see the sun rise in the south-east, and set a little while after (so it seems in these short December days, in this far northern State) behind the city lying to the southwest of us. Tastes differ. Some who call, go straight to the window and say, "What a broad and magnificent prospect!" Others say, "What a fine place for house-plants!" It is from this same window, wide open at night, that four members of the family, sleeping in a large room adjoining, get their pure night air, and when the window is closed as the morning fire is built, there is a plentiful supply of clean air in the room with which to start the day. My acquaintances who crowd their windows with plants, no doubt wonder at our fondness for little flowers that grow on our hills and road sides—flowers just as sweet and pretty as many exotics in their pots and vases, only "common," and therefore "weeds," whose names few people care to know.

People who can have almost everything they want, can, of course, have room windows enough for plants, without interfering with outer prospects and pure air and sunshine, as needed by the family.

### Mittens for Hanging Out Clothes.

Don't go out bare-headed to put your wet clothes on the line in winter weather. It is a foolish and unnecessary tax upon the system, and injurious to the hands. Gloves and mittens worn on ordinary occasions are apt to be more or less soiled—and are not suitable for handling clean clothes. Have a pair for this very purpose. You can cut them from clean flannel (white seems the most suitable), and line them with another thickness of flannel—or make them double—if the flannel is thin. These should be kept in a clean place, ready for this particular business, and nothing else. A good and handy place to keep them is in the clothes-pin bag.

**Match Ends Dangerous.**—The parlor matches in such general use afford the readiest possible method of striking a light, but the very ease with which they are set off makes them dangerous. Serious accidents have occured from treading upon them; they inflame at once, and in several cases women have been severely burned by setting their clothing on fire in this manner. One can not be too careful with them. In striking a match, the wood being poor, it sometimes breaks off, and the phosphorus end falls to the floor. When this occurs, always search for and find the piece. If left, some one may set it off by treading upon it, and there is danger that a painful disaster may result.

## Icing and Ornamenting Cakes.

A house-keeper writes to remind us that we once promised to tell "how wedding and other cakes are so beautifully frosted and ornamented." We are glad that our friend takes the trouble to write us, and would say just here, to new readers as well as old, that we are always glad to have them inform us how we can best help them. The lady has, no doubt, in mind those elaborately ornamented cakes that are sent out by city confectioners and bakers. The same kind of cake may be had with merely a plain icing, or frosting—both names being used—or the surface may have on the margin a wreath or scroll-work with a neat figure in the centre, and there is every degree from this simple ornamentation up to the most elaborate, when the surface of the cake becomes a work of art, and if for special occasions, has monograms, figures, emblems, and whatever taste may suggest, all wrought in sugar. In first-class establishments decorators are employed who do nothing else, and these acquire a skill that others can not hope to equal. To excel in such work, as in any other decorative art, requires taste and skill in handling the materials; those who have the happy knack of "doing things" will succeed with home-made cake decorating; those who lack this should content themselves with plain icing. All that we can do in the matter is to describe the process as we have seen it done by artists in this particular line.

Fig. 1.

THE ICING—Whatever the decoration, the cake has first a coating of plain icing as a foundation. This preparation is merely the white of eggs and powdered sugar beaten together; as eggs differ in size, and as the temperature has an effect upon the icing, no rigid rule can be given. It should be of a consistence that can only be learned by practice; it should not be thin enough to run, nor should it be so thick that, on standing, the surface will not settle and become smooth. The usual rule is: One pound of powdered sugar to the whites of four eggs; if lemon juice or extract of lemon or vanilla is added for flavoring, more sugar will be required to make up for this added liquid. The whites being placed in a shallow bowl, a little sugar is added, and the two are beaten with a whisk or wire egg-beater; the beating is kept up regularly, adding the sugar by degrees. If the eggs are large three will be enough for a pound of sugar. The beating and addition of sugar must go on until the icing is of the right consistence—and only experience and judgment can decide just what the proper stiffness is.

Fig. 2

Fig. 3.

*To apply the Icing.*—The inexperienced should wait until the cake is cold, but those who are skilled apply the icing while it is still quite warm. The side of the cake is iced first; a piece of card-board, not too coarse and stiff, but about like Bristol-board will be required, as this may be curved to suit the surface of the cake; it should be about 4 inches long, and of convenient width to handle; the icing is to be applied to the sides with a knife, and smoothed and spread evenly by the use of the card-board, carrying the icing well up to the edge. For the top, place what may be required in the centre and spread it down towards the edges, by means of the card-board; if the icing is very stiff it may need to be smoothed by the use of a broad-knife dipped in water. Those who are sufficiently skilled to apply the icing to a warm cake, find it hard by the time the cake has cooled, but that on a cold cake must be dried by setting it in a warm place, or in the sun.

*Ornamentation.*—The materials used for ornamenting the surface are of two kinds: 1. The icing itself; and, 2d, sugar paste, to be presently described, from which ornaments not possible with icing, may be made to be attached to the surface.

*The Use of Icing* depends upon the skillful direction of a small stream of the material; syringes are sold at the furnishing stores for this purpose, but the regular decorators use a very simple affair. A coil is made of stout, well-glazed writing paper, (fig. 1), like a confectioner's or grocer's horn, or

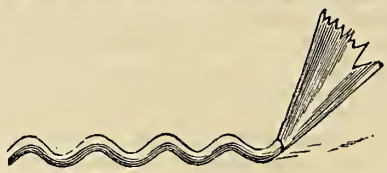


Fig. 4.—A WAVED LINE.

cornucopiæ; this should be made very narrow at the point, and the paper go around two or three times. A quantity of the icing is placed in this, and the top edges are folded over as in fig 2; of course a pressure upon this will force the icing out at the point below, and great care must be taken to regulate the size of the hole there; the point is made purposely long, and by cutting off a bit of the paper at the end, the opening may be gradually enlarged. One of the commonest ornaments is the "drop." Squeeze out enough icing to form a drop, say the size of a pea, touch this to the iced

Fig. 5.—UP AND DOWN SCOLLOPS.

surface of the cake, and lift the horn, and it will leave a neat drop, shaped as in fig. 3. By squeezing gently the top of the horn, a continuous stream will be forced out; this may, by moving the horn along, be laid straight, or by giving it a regular side to side motion it will form a waved line as in fig. 4. By giving the stream an up and down motion, a line like that in fig. 5, will be the result.

*By combining* these simple elements, the drop, the straight line, the waved line, and what we may call the furrowed line, fig. 5, a great variety of ornaments may be made, in the hands of an ingenious person all that may be desired in a home product. The line may be run to form a great variety of figures, such as hearts, leaves, initials and monograms, etc. Fig. 6 shows a very simple, but quite effective border; the waved line is run all around the edge of the cake, and a drop placed in each curve. By having two horns, one giving a larger and the other a very fine stream, very pretty effects may be produced. Suppose a heart or a star has been made with the larger stream, then take the other, which should have a very fine point, and give a thread-like stream, and run lines across within the figure, very near together, in one direction, then cross-wise at right angles; this will give the effect of lace-work. Sometimes the whole

Fig. 6.—A SIMPLE BORDER.

surface of the cake is covered with lace-work in this manner, and the larger figures laid over it.

*Precautions to be Noted.*—Have the icing so stiff that when it runs out of the horn it will retain its shape. In using the horn always press from the upper part downwards, as the icing is used up the top of the horn may be rolled down towards the point. Recollect that it is much easier to enlarge the hole at the point, than to contract it. Try first any new design upon a piece of clean paper.

ORNAMENTS WITH SUGAR PASTE.—The paste is a

sugar dough, made with powdered sugar and mucilage of Gum Tragacanth. To make the mucilage; take an ounce of the whitest Gum Tragacanth, and pour over it a pint of boiling water. Let this stand in a warm place, occasionally stirring, for a day. Tragacanth does not *dissolve*, it only swells to a paste; if not thin enough, add more boiling water and stir. The lumps must be strained out by squeezing through a coarse fabric. Use this strained mucilage and powdered sugar, mix and beat together—a mortar would be convenient, but it may be done on a moulding board, with a plenty of powdered sugar to keep it from sticking—as much sugar as a given quantity of the mucilage will take up and form a stiff dough that can be rolled out thin. From this dough or paste, by means of cutters, formed of strips of tin bent to the desired shape, leaves, parts of flowers, or other ornamental forms may be cut; this may be formed and moulded into any desired shape, and is the raw material from which the most elaborate ornaments are fashioned. These ornaments may be attached to the surface of the cake with little of the mucilage, or where there is a flat surface, by merely wetting them; parts of the paste ornaments may be joined to one another in a similar manner.

*Observe.*.—Do not roll out any more of the sugar-paste than can be used at once, for as soon as dry it is as brittle as glass, and very hard. Keep the mass covered with a damp cloth. Have a definite idea of what is to be made, so that the paste ornaments can be put into shape quickly, before it dries. The surface of leaves, etc., may be figured at will by drawing veins, etc., upon it with some hard, blunt point. Those who understand making wax or other artificial flowers, can fashion this paste into a great variety of forms. We have not provided for any colored or gilded ornaments sometimes used on cakes, as pure white throughout is much more pleasing to persons of taste.

## What are Our Children Reading?

BY FAITH ROCHESTER.

Are we fully awake to the dangers that threaten us, as a result of the vile literature freely circulated among children and young people? A great many have no idea of these perils. Of course they object to obscene publications, but these are seldom discovered by parents in the possession of their children. If read at all (as alas! they often are), they are read in secret. But many a child sits quietly down in the presence of its parents, and reads that which weakens its mental powers and poisons its morals, while the parents rejoice that their little one is so fond of reading, and fondly imagine that by reading it is of course improving its mind. They have no idea of the great flood of trash, and worse than trash, circulating under the name of juvenile reading. It is a common thing now for criminals, when questioned about the causes that led to their evil lives, to confess that the first instigations to crime came from the Dime Novels they read. Dime Novels are now pretty generally rejected by well-informed people, but only a small proportion of the evil literature comes in that form. There are several widely circulated, cheap, illustrated papers and magazines for boys and girls, which are in their general tone and scope worthy only of condemnation, even though they give some interesting and useful information, and some nice little moral lectures sandwiched in with their exciting tales of love and bloodshed, and extravagant adventure. Few children, when once fairly imbued with the love of these exciting tales, read any of the more prosy articles. Stories, and exciting stories alone, will satisfy their morbid appetites. Children who have been carefully trained, as their parents imagined, and guarded from all evil companions, have turned out scamps, as a direct result of the bad tone of their habitual reading.

Only lately a book came into our family, recommended to a youthful member by a mother of little boys as "first rate," and "very funny." I was immediately besought to read it aloud, so that all might enjoy it. I looked over the group of heads as one turned the pages to show the funny pictures, telling something about several pictures, as the story had just been told him by those who lent the book. I was amazed. It seemed to me a miserable book. Not one wholesome picture of childhood did I see—the illustrations were mostly of tricky little boys or flirting little girls, or silly stuck-up or severe teachers, and foolish easily-duped over-fond or over-severe parents. "Do you really think this is the best book I can read to you now?" I asked.—"I don't think it is so good as the books you *have* read to us," they said, "but the L. children think it the funniest and best book that ever was, and they say we ought to read it."

I have studied that book with deliberate intention. I know now one reason why Mrs. L. has to look her boys out of the house when she goes away, for fear the apples will all be eaten up, and why the boys are punished for stealing sugar contrary to orders, and why they have lately been growing unfit companions for little girls. Tom Sawyer, the hero of this book, was not wholly bad, but he was a young scamp, indulging in deceit and lies and other vicious habits, but always coming out "ahead" of everybody else by his superior "smartness." When first introduced to the reader, at the age of 10, he seems to be in the habit of stealing out of his room window and remaining out with other lawless boys until midnight, or after, once looking on at a murder, sometimes tracking thieves or villains, and sometimes searching for hidden money. We are told that "there comes a time in every rightly constructed boy's life when he has a raging desire to go somewhere and dig for hidden treasure." So of course Tom went digging—and though he always shirked everything like regular work or steady industry, either of body or mind, he "came out" at the end of the book far richer in purse than any of his steady, studious, industrious companions, all because of his "luck" in some of his midnight adventures, which led to his finding a bag of money—he and a companion in folly. A very unchildlike and foolish love-story—Tom's love adventures with a silly little girl—runs through the book. I found no good lesson of any kind in the book, and to me it was too painful, in its delineations of precociously "smart" and deceitful childishness to be at all

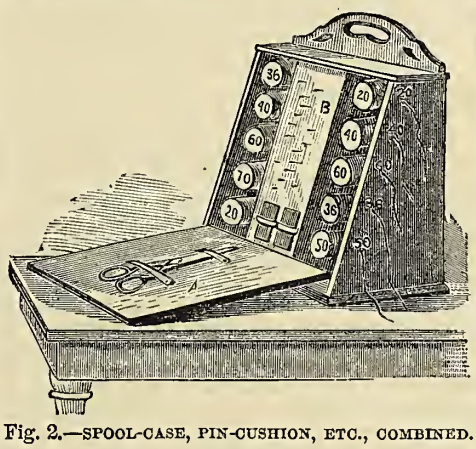



Fig. 2.—SPOOL-CASE, PIN-CUSHION, ETC., COMBINED.

funny. We must have entertaining reading for the children. We need something besides that which merely affords useful knowledge. We want good moral lessons conveyed by interesting stories. We want books which will serve our children in the way of well bred companions, exerting an unconscious influence for good upon their manners and judgments, helping to form good faithful characters. A book like the one I have briefly reviewed above, tends to throw contempt upon obedience, industry, temperance, and education, and its influence is to cultivate lawlessness and vagabondage, which lead to crime.—[And a busy press is sending out hundreds of thousands of these Boys and Girls story papers every week, not apparently immoral at first sight, but of a most demoralizing tendency. We have seen parents of fair intelligence buy and carry home these papers, and subscribe for them, because they happened to see a copy having a pleasing and instructive engraving as a sugar-coating to a vile compound.—ED.]

## Convenient Spool Cases.

BY L. D. SNOOK, YATES CO., N. Y.

[Needle-work is much facilitated by having the various and numerous articles required, always at hand in such a manner that any particular thing may be found without overhauling the work-basket, in which the one thing needed has a happy faculty of getting always at the bottom. Some months ago we gave a plan of a case for holding the various spools of thread and silk, devised by Mr. Snook, and the same ingenious gentleman

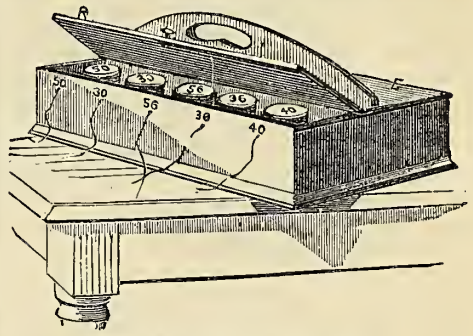



Fig. 1.—A NEAT SPOOL-CASE.

sends us designs for two others, either of which will allow the spools to be kept where the right one may be at once found.—ED.] The engravings show the arrangement of the cases so plainly that little description is required. Figure 1 is a box about 7 inches long, 5 inches wide, and 2½ inches high; the partition in the middle projects far enough above the upper edge to be wrought into a handle, and a cover is hinged upon each side of this. In the bottom of the box are fixed iron or wooden pins, upon which to place the spools. A small smooth hole is provided opposite each spool for the end of the thread to pass through, and it would be well if the number of the thread were placed over the hole. In fig. 2 there is a different style, in which the spools are placed horizontally, instead of upright, and it has an additional advantage in affording a place for needle cases, scissors, and a pin-cushion. This is about 7 inches high, 6 inches wide, and 4 inches deep at the bottom, tapering to 3 inches at the top. The pins for the spools when put in should be set slightly slanting downwards from front to rear, which will prevent the spools from running off when the cover of the case is opened. The ends of the threads pass out at the sides. Such cases may be made of a great variety of materials and admit of different styles of finish. They may be of common pine and covered with fancy paper or other material and ornamented in various styles. They may be made of fancy woods and varnished or polished, or if one has a talent for painting, they may be of any white wood, and ornamented with some pleasing design. Of course the inside will be lined as may be fancied. Those who would contribute articles to fairs are often at loss what to make that will be both attractive and useful. Cases like these are useful and easily made and may be as plain or as elegant as one chooses. Brothers and sisters can co-operate in work of this kind, the boy doing the wood-work and the girl the finishing.

## Household Notes and Queries.

DOWN BED-QUILTS.—A correspondent, who omits to give State, yet thoughtfully sends a stamped envelope for a reply by mail, wishes to know how to make bed-quilts, "using down from geese instead of wool or cotton." Can any one inform her?

STEWED CARROTS.—It is rare that Americans make use of carrots otherwise than to flavor soups or stews, but they are very generally used by Europeans. Cut the carrots, after scraping them, into small pieces or "dice," and cook in water enough to cover them until thoroughly done; pour off the water and add milk sufficient to cover, with flour enough to thicken, salt and butter, allow this to boil up, and serve hot. This is a favorite winter dish with the writer, who finds a slight dusting of

Cayenne an acceptable addition, but unless this is generally liked let each one add it "to taste."

SALTPETER.—"W. C. G." It is very doubtful if Saltpeter has any preservative effect upon meats; we never use it for curing hams, salt and sugar being sufficient. Saltpeter is used to heighten the color, or rather to prevent the red color of the meat from changing to a dark brownish one.

"HYGIENIC" BUCKWHEAT CAKES.—A correspondent asks us if we can give a method of cooking buckwheat cakes that is "strictly hygienic."—We must know in the first place in what sense "hygienic" is used. Among all the sects or stripes, or "schools," as they term it, of medicine, there is one that calls itself "Hygienic," and if our correspondent has this in view we must say that we do not know their method of administering buckwheat cakes. Hygiene, as we understand it, relates to the laws of health. Buckwheat cakes are a vehicle for eating good butter, rich gravy, or maple or other syrup; they are nothing without some addition of this kind, and nothing if not hot. Whether such a combination can be regarded as "hygienic," is a question that each one must decide for himself.

BAKED APPLE DUMPLINGS.—By Mrs. K. Xenia, O. Pare and slice good tart apples. Make a pie-crust, using half the usual amount of lard, adding the requisite quantity of baking powder. For each dumpling, take a piece of the dough the size of an egg, roll it into a ball with the hands, and press into it five or six slices of apple, closing the dough over them carefully. Place in a deep pan, and bake. Serve hot, with cream or other suitable sauce.

PLATE GLASS AND COMMON GLASS.—Mrs. "S. D.," Minn. It is very proper for a lady to know about such things, and if she does not know, it is proper for her to ask, so no apology is needed in this or any similar case. The most common window-glass is made by first blowing a cylinder—like a large jar with straight sides; this, while yet hot, is cut open lengthwise, and flattened out, to form a sheet. Plate glass is not blown at all, but the molten glass is poured out upon a flat iron table, and the mass rolled by a heavy iron roller, until thin enough, much as you would roll out pie-crust. When cool, the surfaces are rough and dull, and they are afterwards made very smooth and polished by rubbing with emery and other polishing materials.

RYE BREAD.—The name of the lady who sent this is mislaid.—Make a sponge the evening before, using *wheat*-flour and dry hop yeast. Early the next morning mix the bread with rye flour, the same as ordinary bread, kneading thoroughly, and set in a warm place to rise. Take care that it does not rise too much, as it sours much quicker than wheaten dough; when raised sufficiently, knead again, put into pans, and when the loaves begin to crack on the top, bake in a moderate oven. I make bread of equal parts of rye and wheat-flour, which is preferred by some to bread of wheat alone.

FRUIT STAINS vary in the ease with which they may be removed. Some yield to pouring boiling water over the spot, others require some bleaching agent. Wetting the stain, and holding it in the fumes of a brimstone match will sometimes answer. The most convenient material is Javelle Water, generally kept by druggists. To make it, dissolve one pound of saleratus in a pint of water; mix four ounces of fresh chloride of lime, with one pint of water, stirring to remove the lumps—it will not all dissolve. Pour the two liquids together, stir or shake thoroughly, set aside, and when the deposit has settled, pour off the perfectly clear liquid and bottle for use. Glass or earthern vessels should be used in preparing it. Wet the stains with this and rinse well, just *before* washing the articles. It can of course only be used on white articles, as it would bleach colored ones.

BUTTER CRACKERS, By "J. B. F.," Chicopee, Wis. 1 quart flour; 3 table-spoons butter rubbed into the flour; 1 salt-spoonful salt; 2 cups sweet milk; ½ tea-spoon soda dissolved in hot water. Work into a ball, lay on a floured board and beat with a rolling-pin half an hour. Roll out ¼ of an inch thick, prick deeply with a fork and bake hard. Hang up in a bag near a stove for two days to dry.

# BOYS & GIRLS' COLUMNS.

## The Doctor's Talks.

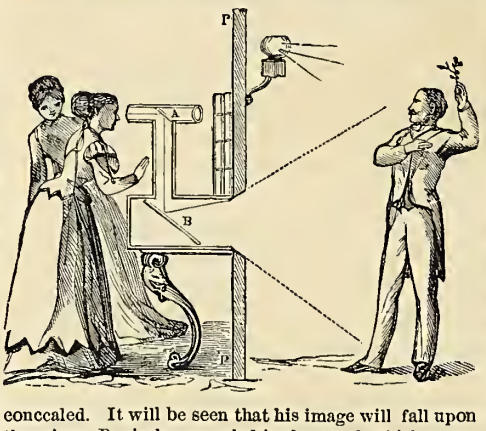
"L. W. L.," of Fort Smith, Ark., asks me to tell how to make pictures of flowers with stencils. I do not think it worth while for any one to bother with this, for the pictures are very poor, and it is something that I do not care to encourage. This used to be called

POONAH PAINTING.

Patterns are cut in stiff paper or card-board, and the color rubbed with a brush through these patterns—just as you can see boys in our shipping department, and other business places, marking boxes, with stencil plates. It is a very poor way of making pictures; the rudest sketch is greatly to be preferred to this machine painting.

TRICKS WITH MIRRORS

are of various kinds. One is made use of by those "fortune-tellers," and other swindlers, that pretend (if sufficient money is paid) to show silly girls their future husbands. The manner of doing this is shown by the diagram, below. Here a sort of telescope is fitted up, through which the victims think they look into the "great future," when they really only look into the next room, where the man who plays the part of the "future husband," is




concealed. It will be seen that his image will fall upon the mirror *B*, nicely concealed in the stand, which covers the hole in the wall; this will be reflected upon another mirror, *A*, placed at the proper angle, and seen by the innocent, who pays her money to see the image of a rascal, who would be most appropriately seen through the bars of a prison. A darkened room on one side of the partition, and a brightly lighted one on the other, with much ceremony, nonsensical talk, and mummery on the part of the fortune-teller, help out the deception.

BOYS THAT DON'T LIKE GREEK.

One of our boys says, his father wants him to study Greek and Latin, for he wants him to go through college bye and bye, because it will make him a *better* farmer. He "likes his Latin lessons very well," but "wishes we would write something against Greek," for my father believes in everything he sees in the *American Agriculturist*, which he has read since before I was born."—We would like to oblige our young friend, but we must agree with his father. First let us tell him that the harder a study comes to one, the more important it is to push into it. Study is not so valuable for the mere knowledge it gives, as for the training, the discipline of mind it supplies. If any study comes harder than another, it shows a weakness of the mind in that direction, and study will *strengthen* it, where it most needs it. Mathematics and languages are capital studies, to give the *mind* development, power, persistence. Then, the Greek and Latin are the foundation languages of our own, and they greatly help to understand our own better. Moreover, as they are "dead," *unchangeable* languages, and are understood by most nations, they are largely used to furnish names or terms for the sciences. But we cannot take room here to discuss this matter. We will only tell our young correspondent that if he lives he will in after-life be very thankful to his father for every day and every hour he urges or even compels him to devote to the hardest study, whether it be Greek or anything else.

**How he Spelled his Name.**—A friend of ours who keeps a wholesale store, had a customer who came from the country every three months, paid his bill and ordered a new lot of goods. One day this customer came when the book-keeper was out, and according to custom, asked for his last quarter's bill. The merchant could not recollect the name of his customer, but as he had kept up his habit so regularly for many years, and was such a good and prompt buyer, our friend felt ashamed to let the other know that his name was forgotten. He fumbled over the ledger in the hope his eye might catch the name when he would recognize it. All in vain—the more he tried, the more he could not think of it. At last he hit upon, as he thought, a capital plan, so taking up a bill sheet as if to make the account, he said: "By the way, my friend, I think you spell your name a little different from common, and I do not exactly remember just how *you spell it*."—"Spell it," replied the customer, "Why I always spell it S-m-i-t-h!" There was one person then present who felt cheap, and it was not Mr. Smith.

## Our Puzzle-Box.

CLASSICAL DOUBLE ACROSTIC.

Initials and finals, read downwards, give the names of two Grecians noted for their wisdom and learning; whilst the father of one was a felon, the mother of the other a midwife.

1. A musician who sang before Ulysses.
2. Nursed the infant Bacchus, and after became the second wife of Æolus.
3. A religious festival of the Greeks was thus entitled.
4. Ptolemy says was a river of Africa.
5. A Goddess, whose fondness for flowers and animals had a curious result.
6. Is the English name of one of the most ancient deities; a daughter of Chaos.
7. Was a faithless wife of a forgiving husband.
8. Has been termed "the Egyptian Alexander." J. A. B.

HIDDEN RIVERS.

1. Are dandelion roots good to eat?
2. Do you two ever agree, now, about that dog.
3. What a pig! I laid it flat with a stone.
4. Oh! I owe you fifty cents for it, do I?
5. Neither this nor that will suit the man.
6. He takes offence at the least provocation. LOUIE.

NUMERICAL ENIGMAS.

1. I am composed of 9 letters:
   My 4, 3, 6, 5, is a ravenous beast.
   My 1, 2, 7, 8, 9, is a reptile.
   My 1, 7, 4, is a carpenter's tool.
   My 1, 2, 9, 7, 8, is a mean fellow.
   My 5, 7, 6, 6, 3, 4, is a species of deer.
   My 6, 7, 4, holds men in subjection.
   My 1, 9, 6, 5, is what most persons too much esteem.
   My 6, 7, 4, 2, is generally seen around or in front of a house.
   My whole is seen in winter. PERRY A. McI.

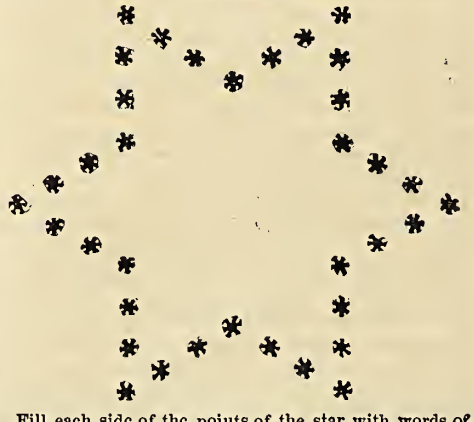
BIBLICAL ENIGMA.

2. I am composed of 19 letters:
   My 5, 16, 10, 8, was the father of a mighty hunter.
   My 1, 18, 13, 4, was a mount mentioned in Genesis.
   My 6, 3, 17, 9, is a small wild animal.
   My 8, 2, 15, 6, was the ancestor of a tribe.
   My 14, 8, 16, 7, was a grandson of Noah.
   My 19, 6, 16, 12, was a wilderness in which the children of Israal travelled.
   My 11, 3, 17, is a vehicle.
   My whole is a divine command. ISOLA.

MELANGE.

Behead a river in the United States and find a title.
Curtail the river and leave a fruit.
Syncopate the river and leave a Sound.
Transpose the title and leave one of Shakspeare's characters.
Transpose the fruit and leave "to gather;" again, and get "to diminish."
Transpose the Sound and find a jump; again, and get an enclosure; again, and give an excuse.
Behead the excuse and leave a meadow.
Curtail the title and leave part of the body.
Syncopate "to gather" and get a blow.
Behead the enclosure and get a beverage.
Curtail the fruit and leave a vegetable. ISOLA.

STAR PUZZLE.



Fill each side of the points of the star with words of four letters. Let the last letter of each word make the commencement of the next one. Let the words be such that you can read the star around either to the left or to the right.

*To the Right.*

1. An animal. 2. Part of a house. 3. An African. 4. A musical instrument. 5. An avenue. 6. Blows. 7. A mark. 8. A snare. 9. A body of water. 10. To sail nearer to the wind. 11. Abundance. 12. To guard.

*To the Left.*

1. Draught. 2. An animal. 3. To trifle. 4. A small, narrow opening. 5. To allot. 6. Play-things. 7. A long beam. 8. A measure. 9. An animal. 10. Space. 11. A pen. 12. Bamboo.

ANAGRAMS.

1. Got ten men in.
2. At neat office.
3. Ice! ice! Mrs. Enns.
4. Don't nab cars.
5. Ma screen corn.
6. Cane stairs.
7. Is poor ditch.
8. I treat rule.
9. He tore maps.
10. The bay lace.

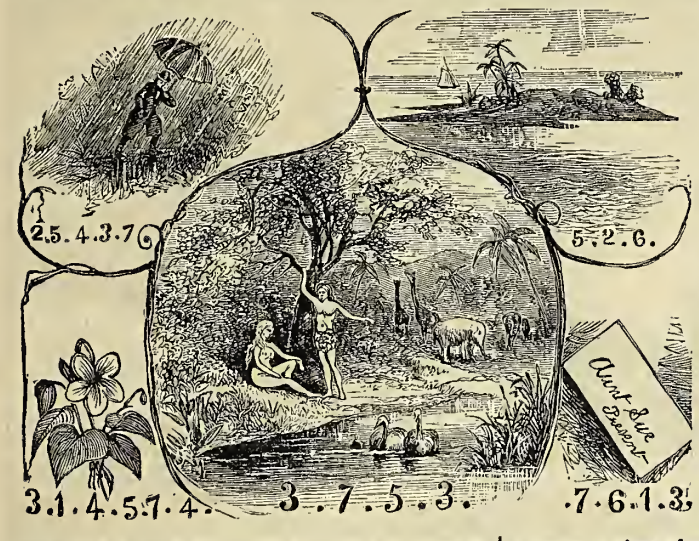
CROSS-WORD.

My first is in mile but not in rod,
My next is in grass but not in sod,
My third is in engine but not in cars,
My fourth is in fence but not in bars,
My fifth is in lend but not in loan,
My whole is a state that is very well known.

GEO. H. FULLER.

PICTORIAL ANAGRAM PUZZLE.

This puzzle is a proverb containing seven words, anagrammatized; consequently the numerals under the pictures (from 1 to 7) indicate to which words of the proverb the letters, composing the picture, belong. 1 belongs to the first word, 5 to the fifth word, and so on—*e. g.*, If I had a picture of a hat, under which were the




numerals 5, 1, and 3, you would know that the letter H must be placed under the 5th numeral (fifth word of proverb). A, under the first numeral, and T under the third. Take your paper, or slate, and write down the first seven figures, in a row—1, 2, 3, 4, 5, 6, 7. When you find the right words illustrated by the pictures, put the letters under the numerals given, in a horizontal column. Then, having written them all thus, transpose the letters under each numeral, so as to make the word required for the proverb—*e. g.*, If under the numeral 4 should happen to be the letters "T—R—E—E—B—T," you would transpose them into the word "BETTER." With these instructions, I think you will have no difficulty in finding out the proverb embraced in our present pictorial puzzle.

ANSWERS TO PUZZLES IN THE DECEMBER NUMBER.

BIBLICAL DOUBLE ACROSTIC.

Babylon—Nineveh.

B—enjamin—N
A— —I
B— asha —N
Y— ok —E
L— —V
O— liv —E
N— azaret —H

CROSS-WORD.—Barleycorn.

NUMERICAL ENIGMAS.—1. Oliver Wendell Holmes. 2. Passamaquoddy. 3. Webster's Dictionary.

PUZZLE.—NOVICE (deduct VI and transpose the remainder into CONE).

CHARADE.—Door-step.

## The Doctor's Correspondence.

"PLEASE TELL US ABOUT SPONGE. WHAT IS IT?"

says "Charlie H. M.," Clay Co., Mo. If Charlie had asked that question some years ago, I should have said that naturalists considered it to be a kind of vegetable, but of late years it has been more carefully studied, and is now classed with the animals. A curious kind of an animal you will no doubt think it—and it is really very curious, and not altogether easy to explain. Of course my young friend has in mind the common sponge, such as he uses to clean his slate with, and such as are used for bathing and other purposes, for there are several different kinds of sponges. Ships from the East Indies used to bring home most beautiful things called "Venus' Flower Baskets," one of these was figured in the *American Agriculturist* for February, 1872, p.53, and those of you that have the back volumes, should hunt up the engraving. It is a horn-shaped body, 6 inches or more long, and between 1 and 2 inches across the widest end, all of most elegant open-work, like lace, and of a material that looks like spun glass. Later, when trade opened with Japan, there came from there what looked like glass threads twisted into a cord, larger round than a lead-pencil. These, the "Venus Flower Basket" and the "Glass Rope" were at first great puzzles; each had at one end a place where the glass was mixed with sand and bits of rock, as if it had been torn from some foot-hold, and it was believed to be from the sea, before their real nature was found out. At last it was learned that these were the frame-work, the hard part, or skeleton of a soft jelly-like animal, in fact, were the hard parts of a peculiar kind of sponge. The material of these is silica, which you no doubt know is just the same as quartz crystal and flint.

THERE ARE DIFFERENT KINDS OF SPONGES.

Some in which the frame-work is of this kind, others in which it is lime-stone, like shell, and others still, in which the frame-work is of the peculiar elastic somewhat horn-like substance that we know in common sponge. Our sponge, then, is the frame-work, or hard part of an animal that lives in the sea—but of what animal? Here is a difficult matter to describe, as you are used to seeing animals very regular in form, each having its proper parts by which to move, to feed, etc. We find these in the higher animals, but when we examine the

LOWER FORMS OF ANIMAL LIFE,

there is nothing of this kind. Here we find what may be called compound animals, *i. e.*, what seems to be many distinct animals, all united in one mass. Take a tree, for example, we find each bud, and each twig growing, and helping to increase the size of the trunk year after year. In the lower animals, the parts bear something the same relation to the whole, that the buds and twigs do to the trunk of the tree. It would take many drawings, and be rather dry reading, if I were to try to tell you the naturalist's view of the sponge, so you must be content with the general description that this article we know as sponge, is the frame-work to support a jelly-like animal or mass of animals; that this, though it appears only like a jelly, has life, is able to feed, to grow, and to build up the frame-work. Sponge, you know, is full of holes upon its surface, and has openings or passages all through it. Well, this jelly-like substance surrounds the sponge and lines all these openings, and is able to keep up through the mass constant currents of sea-water. Fig. 1, shows a piece of sponge with the currents of water. By keeping up this circulation, the mass is able to get from the water the materials, the food

UPON WHICH IT LIVES AND GROWS.

That is about all that I can tell you about it without going into matters that you would not understand. You will infer from this, that the sponge, as it lives in the sea, is a very different affair from that with which you wipe your slate. And so it is. When taken from the rock at the bottom of the sea, it is a very unpleasant slimy mass; the sponges as gathered, are taken ashore, and in some countries, are buried in the sand, but in others, they are thrown into rude pens where they will be washed by the tide as it rises and falls. The live, or jelly-like part soon dies, then it decays, and is washed out, leaving at length the frame-work, or what we know as the sponge, free; which, after it is thoroughly washed and beaten, is dried in the sun, and is ready to be packed for market. As the jelly-like part decays, it gives off horrible odors and makes this part of the sponge business very disagreeable.

THE FINER SPONGES

come from the Mediterranean, where they are taken by diving in 50 to 75 feet of water, between 4,000 and 5,000

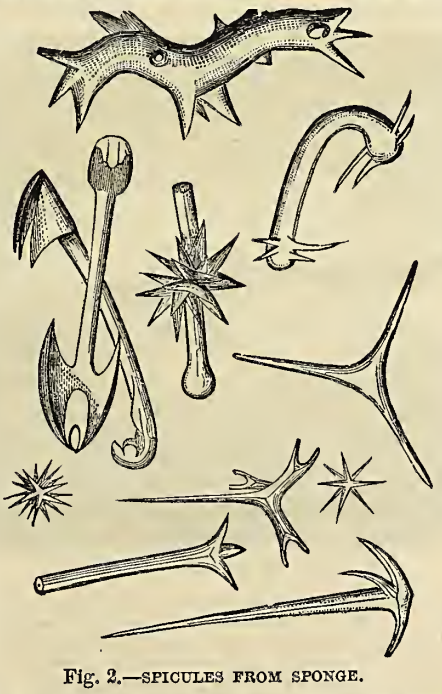


Fig. 2.—SPICULES FROM SPONGE.

men being engaged in diving. The coarser kinds come from the West Indies and Florida; these grow in shallower water, and are brought up by means of long poles to which hooks are attached. There are many sponges besides the useful ones; those who live near the coast, have seen the reddish bodies attached to oyster shells, which oystermen call the "red-beard;" this is a kind of sponge, and others are found on the coast. Some sponges have their frame-work strengthened by what are called *spicules;* these consist of lime-stone, and present a great variety of shapes, as shown in figure 2. However beau-

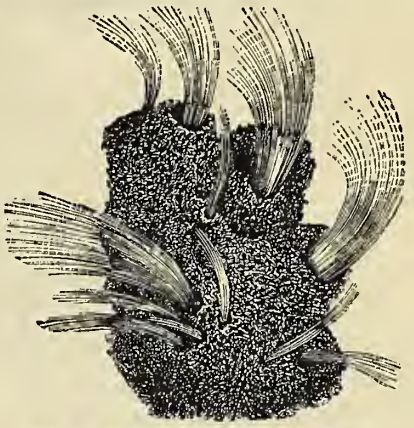


Fig. 1.—PORTION OF LIVING SPONGE.

tiful the forms of the spicules may be under the microscope, they quite unfit the sponge for the uses to which we put it, hence these are not found in ordinary sponge.

## How Lives are Saved on the Coast.

On a stormy winter's night, when the gale is raging without, you feel a sense of comfort as you draw near the fire, and perhaps enjoy the warmth and brightness within all the more as you hear the storm fiercely beat against the windows. Those of you who live near the sea-coast, or near the shores of the great lakes, will notice that older people are very quiet on such a night; they appear to be thinking of something, and when the storm beats with renewed fury, you may hear a quiet "God help the poor sailors." They know what suffering and what loss of life such storms bring, and in the enjoyment of the comforts of home their thoughts go out to those who may never see their homes again. You who live far inland have but little idea of the dangers a terrific gale brings to incoming vessels; a strong ship can ride out a storm at sea, but when one comes up, as the vessel is nearing port, and the wind blows toward shore, there is always great danger. In view of the loss of life and property caused by wrecks on the coast every winter, the Government in 1847 established stations at the most dangerous points, where there were men and boats always in readiness to help vessels in distress. From this beginning has grown the Life-Saving Service, which is one of the most complete, as it is one of the most useful branches of government service. All along the coast are placed Stations, and in some parts so near together that they can signal to one another; each has a crew of strong and brave men, and everything that can be useful for their work. Those who went to the Centennial Exhibition, and failed to make a visit to the little white building on the margin of the lake, and opposite Machinery Hall, missed a most interesting sight. This building was exactly like one of the Life-Saving Stations, and contained everything that is used in the service. There were boats of different kinds, surf-cars, cannon, mortars, all kinds of ropes, life-preserves, rockets for signals, and ever so many other matters for saving persons, besides blankets and beds, and other comforts for them after they reached the shore. I spent some time very pleasantly at this Station, the intelligent officer in charge seeming to be very glad to explain everything to those who showed an interest in the matter. In many cases the persons on the wreck can be saved by means of the life-boat. This is a light but very strong boat, built to "live" in any sea, provided it can be once got beyond the breakers. Fig. 1, on next page, shows a life-boat going to the rescue of persons on a wrecked vessel. This is no child's play! It requires strong arms, and also strong hearts, for not an oar must lag. It is no small task to launch the boat and get it beyond the rollers as they break in upon the shore. The Captain must be brave and decided, and the crew must be quick to obey every order, for the great danger is when the boat reaches the ship; if there is any mismanagement then, the boat will be dashed against the vessel and the rescuers themselves be lost. There are, however, times when the sea is so high that no boat can live, and even could one get to sea, it would be impossible for the people to get into her from the wreck. Then the surf-car comes into play; this is a covered boat with one opening, which has a hatch, or cover, that fits down water-tight. Passengers can be brought from the wreck in this with safety; but first there must be a line from the

Fig. 1.—A LIFE-BOAT TO THE RESCUE OF A WRECKED SHIP.

wreck to the shore, and how do you suppose this is managed? This is one of the most interesting things about the Life-Saving Service; in speaking of the things to be seen in the station house, I mentioned cannon and mortars. The cannon are for signals, to let the poor shipwrecked fellows know that they are seen, and also to call in help from other stations. The mortars are short wide-bored cannon, which do not shoot point-blank, or straight ahead, but throw a ball upwards, and by properly inclining the mortar, the ball will drop where it is desired to put it. A shot is fired from the mortar, which is so inclined that the ball will fall beyond the wreck. The ball has attached to it a small but very strong and long line. Bang goes the mortar, whizz goes the shot, it falls beyond the wreck, but the line—that thread of hope on which hang the lives of so many, falls *across* the wreck. Let us be thankful that gunpowder can save life as well as destroy it! Having hold of this line the shipwrecked crew are safe; they pull-away at it—Oh how they must pull!—and it brings them a rope—a stronger hold upon the shore. By means of the rope they can pull the surf-car to them. This car has at its other end another rope controlled by those on shore. As many as it will hold enter the car, the hatch is fastened down, the signal is given, and lusty fellows on shore pull at it with a will. Figure 2 shows the surf-car on its passage. No doubt the few minutes that pass between the leaving of the wreck and the reaching of the shore seem almost an age to those packed in its dark cavity, but when they come out upon dry land, and to the warmth and comfort of the station, they must be ungrateful indeed if they do not bless the government that has provided for their safety, and the brave strong men, who all through the stormy half of the year, stay at these lonely stations, ready at any time of night or day to answer to the cry for help from the ship-wrecked crew. And they will not forget in their thanks the inventor of the surf-car. This is indeed a grand life-saving invention. It makes no show, no noise, it is only used away off in lonely places by the sea—nevetheless, it is grand. Why, on the very first time it was used, it was the means of saving from the British ship "Ayrshire" 201 persons! Knowing that you would like to know who invented this surf-car, I looked it up, and find to my great surprise and delight that Capt. Douglas Ottinger, of the U. S. Revenue Marine Service, invented this blessed life-saving contrivance, which has brought to land and life so many who must otherwise have perished in the sea. Now I want to tell you about this same Capt. Ottinger. Some 25 years ago I was encamped near what is now New San Diego, a most charming harbor on the Pacific Coast. Capt. Ottinger was in command of the U. S. Revenue Cutter "Frolic," and while I was stationed there the "Frolic" came in for repairs; she was thoroughly overhauled, painted, and fixed up generally, an operation that took two weeks or more; during that time Capt. O. was frequently at my tent, and I was often on his vessel, we met often and talked freely. After his vessel was in order, he invited a party of several, including myself, to go with him on a trial trip, and he took us for a two or three days' sail among the islands just off the coast. The strange thing is this: it is only just now, in writing this article, and having occasion to find out who invented the surf-car, that I learn it was my old friend Capt. Ottinger! In all those weeks of free intercourse, he never mentioned the surf-car once. I do not know whether the Captain is living or not, but wish to put on record this fact, that he was the most modest man I ever met. He had made an invention, the value of which could not be computed in dollars. Yet he not only did not boast of it, but did not even let those of us who saw him daily, and who esteemed him for his many genial qualities, know of its existence. Boys, I have found it so all through life. True merit is ever modest. When I began to write about the Life-Saving Service, I had no idea that I should come out on the pleasant shores of San Diego Bay, and have my charming excursion on the "Frolic," and the pleasant intercourse with her officers, brought to mind. I began with thinking of a furious storm, I end with thoughts of the placid Pacific and the good Capt. Ottinger. THE DOCTOR.

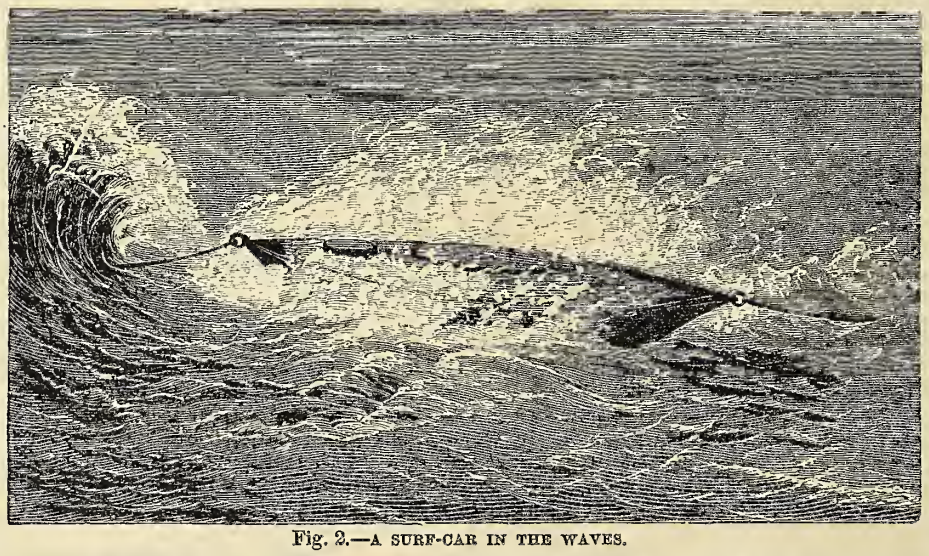


Fig. 2.—A SURF-CAR IN THE WAVES.

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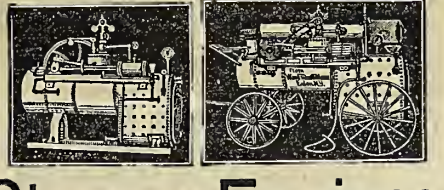

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These, as their name implies, do not require housing or other protection in winter, and, being *perennial*, they do not need to be annually renewed by seed or otherwise, but being once planted, they go on

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No other class of plants are so well suited for general cultivation or will give so much satisfaction with so little trouble. They are empbatically

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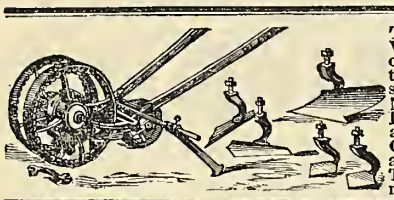

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This is the most complete and positive Seed Drill ever invented. It is radically different from and superior to all others. It is the **only** machine which measures and drops the seed with a positive motion, and exactly the same amount at each foot or yard. It has been tested by 5 years' use in Massachusetts, and was awarded the highest prize at the "Centennial." ☞ The "Monitor" has been thoroughly tested during the season of 1878, and heartily endorsed **as a First Class Machine** by Professor Geo. Thurber, of New Jersey, and by Jas. Vick, of Rochester, N. Y.

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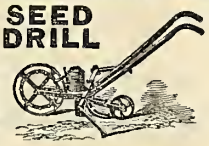

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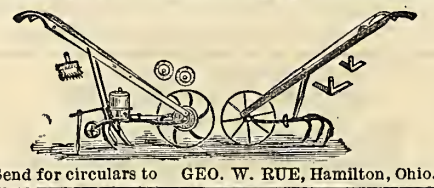

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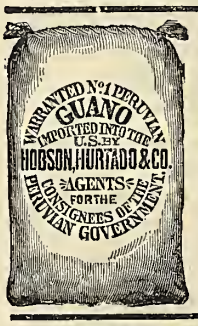


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**BEAUTIFUL EVER-BLOOMING**

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**THE CHOICEST FLOWERS GROWN.**

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**LIST OF SMALL FRUIT PLANTS** for family use. The most liberal offer of the year.

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*We will send free by mail, and guarantee their safe arrival in* **Good Condition,** *our choice*

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| **12 ROSES** | 12 sorts, | $1 |
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**CHEAP,** *and* **many**

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**26th** *Year.* **15** *Greenhouses:* **400** *Acres.*

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1840 Reliable Seeds Reliable Seeds 1879

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**PEARL OR EGYPTIAN MILLET.**

Clean seed, 15 cts. oz., 40 cts. ¼ lb., $1.00 lb. Seed in chaff, 50 cts. pt., 80 cts. qt. by mail, post-paid.

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13 Monthly Blooming Roses or, 22 Splendid Verbenas, $1. 4 Geraniums, 4 Abutilons, and 4 Begonias or 12 Carnations, $1. 4 Fuchsias, 4 Carnations, & 4 Double Petunias, all different, $1. 4 Calla Lilies, 4 Tuberoses and 4 Smilax or 12 Geraniums, $1. 5 Heliotropes, 5 Lantanas & 5 Chrysanthemums or 10 Fuchsias, $1 2 Golden Tricolor, 4 Silene & 2 Happy Thought Geraniums, $1. Sent by mail postage paid, or the 6 collections per ex. for $5. Illustrated catalogue sent free on application.

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OF EVERY DESCRIPTION.

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**DESCRIPTIVE, ILLUSTRATED and PRICED CATALOGUE now READY.**

Will be **MAILED FREE** to all **APPLICANTS.**

## Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, from our record kept daily during the year, show at a glance the transactions *for the month ending Jan. 11th*, 1879, and for the corresponding period last year, and *also for the year ending Dec.* 31, 1878:

1. TRANSACTIONS AT THE NEW YORK MARKETS.

| RECEIPTS. | *Flour.* | *Wheat.* | *Corn.* | *Rye.* | *Barley.* | *Oats.* |
|---|---|---|---|---|---|---|
| 23 d's *this* m'th.. | 315,000 | 2,249,000 | 921,000 | 68,000 | 137,000 | 405,000 |
| 26 d's *last* m'th.. | 475,550 | 4,236,000 | 2,434,000 | 387,000 | 743,000 | 831,000 |
| SALES. | *Flour.* | *Wheat.* | *Corn.* | *Rye.* | *Barley.* | *Oats.* |
| 23 d's *this* m'th | 267,000 | 6,109,000 | 3,051,000 | 279,000 | 307,000 | 768,000 |
| 26 d's *last* m'th | 564,000 | 5,936,000 | 4,094,000 | 411,000 | 609,000 | 1,302,000 |

2. *Comparison with same period at this time last year.*

| RECEIPTS. | *Flour.* | *Wheat.* | *Corn.* | *Rye.* | *Barley.* | *Oats.* |
|---|---|---|---|---|---|---|
| 23 days 1878.. | 315,000 | 2,249,000 | 921,000 | 68,000 | 137,000 | 405,000 |
| 25 days 1877.. | 397,000 | 3,981,000 | 2,463,000 | 181,000 | 416,000 | 546,000 |
| SALES. | *Flour.* | *Wheat.* | *Corn.* | *Rye.* | *Barley.* | *Oats.* |
| 23 days 1878.. | 267,000 | 6,109,000 | 3,051,000 | 279,000 | 307,000 | 768,000 |
| 25 days 1877.. | 343,000 | 4,104,000 | 3,513,000 | 159,000 | 341,000 | 839,000 |

3. *Exports from New York, Jan. 1, to Jan. 10.*

| | *Flour.* bbls. | *Wheat.* bush. | *Corn.* bush. | *Rye.* bush. | *Barley.* bush. | *Oats.* bush. | *Peas.* bush. |
|---|---|---|---|---|---|---|---|
| 1879.... | 36,926 | 723,555 | 170,119 | 132,409 | —— | 488 | 2,877 |
| 1878.... | 47,039 | 704,757 | 320,123 | 27,587 | 54,250 | 1,298 | 3,798 |
| 1877.... | 39,420 | 466,708 | 42,295 | 7,984 | —— | 4,285 | 18,143 |
| 1876 ... | 71,714 | 521,558 | 453,833 | 2,840 | —— | 6,183 | 32,093 |
| 1875.... | 67,408 | 732,422 | 480,372 | —— | —— | 4,719 | 5,095 |

CURRENT WHOLESALE PRICES.

| | Dec. 13. | Jan. 11. |
|---|---|---|
| FLOUR—Super to Extra State | $3 15 @ 4 25 | $3 20 @ 4 25 |
| " Super to Extra South'n. | 3 15 @ 5 75 | 3 25 @ 6 00 |
| " Extra Western ......... | 3 70 @ 8 75 | 3 60 @ 8 50 |
| " Extra Genesee.......... | 3 85 @ 5 50 | 3 75 @ 5 50 |
| " Superfine Western ..... | 3 15 @ 3 65 | 3 15 @ 3 50 |
| RYE FLOUR, Superfine....... | 2 85 @ 3 30 | 2 65 @ 3 15 |
| CORN-MEAL. ............... | 2 15 @ 2 85 | 2 10 @ 2 80 |
| BUCKWHEAT FLOUR, ℘ 100 ℔s | 1 60 @ 1 90 | 1 50 @ 1 75 |
| BUCKWHEAT, per bush ....... | 47 @ — | 45 @ 46 |
| WHEAT—All kinds of White. | 1 00 @ 1 11 | 1 00 @ 1 12 |
| All kinds of Red and Amber. | 78 @ 1 08 | 75 @ 1 11½ |
| CORN—Yellow ............... | 45 @ 63 | 47½@ 64 |
| " Mixed ................. | 42 @ 47 | 44½@ 48 |
| " White.................. | 45 @ 63 | 45 @ 52 |
| OATS....................... | 28½@ 37½ | 29 @ 36½ |
| RYE........................ | 55 @ 62 | 55 @ 61 |
| BARLEY .................... | 75 @ 1 25 | 75 @ 1 25 |
| HAY—Bale, ℘ 100 ℔s.......... | 25 @ 75 | 30 @ 80 |
| STRAW, ℘ 100 ℔s.............. | 25 @ 45 | 25 @ 50 |
| COTTON—Middlings, ℘ ℔.... | 8¾@ 9⅛ | 9¼@ 9⅜ |
| HOPS—Crop of 1878, ℘ ℔ ...... | 5 @ 15 | 5 @ 15 |
| " " 1877, ℘ ℔ ...... | 4 @ 6 | 4 @ 6 |
| " olds, ℘ ℔.......... | 1 @ 3 | 2 @ 3 |
| FEATHERS—Live Geese, ℘ ℔. | 35 @ 50 | 35 @ 50 |
| SEED—Clover, West. & St.℘℔ | 6¼@ 7¾ | 6¼@ 7¾ |
| " Timothy, ℘ bushel...... | 1 20 @ 1 30 | 1 20 @ 1 30 |
| " Flax, ℘ bushel......... | 1 40 @ — | 1 40 @ 1 45 |
| TOBACCO, Kentucky, &c., ℘ ℔. | 2½@ 11½ | 2½@ 11½ |
| " Seed Leaf, ℘ ℔......... | 3½@ 45 | 3½@ 45 |
| WOOL—Domestic Fleece, ℘ ℔ | 20 @ 42½ | 21 @ 39 |
| " Domestic, pulled, ℘ ℔ .. | 20 @ 38 | 22 @ 36 |
| " California ............. | 12 @ 27 | 12 @ 26 |
| TALLOW, ℘ ℔ ............... | 6⅝@ 6¾ | 6⅝@ 6¾ |
| OIL-CAKE—℘ ton ............ | 28 00 @ — | — — @27 00 |
| PORK—Mess, ℘ barrel ....... | 7 30 @ 7 60 | 7 45 @ 7 65 |
| " Extra Prime, ℘ barrel.. | — @ — | — @ — |
| BEEF—Extra mess............ | 10 50 @11 50 | 10 50 @11 50 |
| LARD, in trcs. & bbls, ℘ 100 ℔ | 5 80 @ 6 37½ | 5 97½@ 6 25 |
| BUTTER—State, ℘ ℔.......... | 12 @ 27 | 12 @ 30 |
| " Western, poor to f'cy, ℔. | 7 @ 27 | 8 @ 32 |
| CHEESE..................... | 3 @ 8 | 3½@ 9½ |
| EGGS—Fresh, ℘ dozen ....... | 23 @ 26 | 24 @ 28 |
| POULTRY—Fowls, ℘ ℔......... | 7 @ 14 | 5 @ 10 |
| " Chickens, Penn., ℘ ℔.... | 11 @ 14 | 8 @ 11 |
| Turkeys—℘ ℔.................. | 7 @ 12 | 6 @ 12½ |
| Geese, ℘ pair................ | 1 12 @ 1 50 | 90 @ 1 50 |
| Ducks, ℘ pair................ | 40 @ 90 | 45 @ 90 |
| " ℘ lb................... | 9 @ 13 | 9 @ 12 |
| DUCKS, Wild, ℘ pair ......... | 40 @ 2 25 | 30 @ 2 00 |
| GROUSE, ℘ pair.............. | — @ — | 50 @ 65 |
| QUAIL, ℘ dozen............... | — @ — | 40 @ 65 |
| CHESTNUTS—℘ bush.......... | 3 25 @ 4 00 | — @ — |
| HICKORY NUTS—℘ bush ..... | 2 25 @ 2 50 | 2 00 @ 2 50 |
| APPLES, ℘ barrel............. | 1 00 @ 2 00 | 75 @ 2 25 |
| GRAPES, ℘ ℔................. | 6 @ 20 | 2 @ 7½ |
| CRANBERRIES—℘ bbl.......... | 5 00 @ 9 00 | 6 00 @ 9 50 |
| BEANS—℘ bushel.............. | 1 50 @ 2 20 | 1 25 @ 2 45 |
| PEAS—Canada, in bond, ℘ bu | 73 @ 75 | 72 @ 75 |
| POTATOES, ℘ bbl............. | 1 75 @ 3 00 | 1 87½@ 3 00 |
| " Sweet, ℘ bbl....... | 1 25 @ 2 25 | 2 00 @ 2 50 |
| TURNIPS ℘ bbl................ | 75 @ 87½ | 50 @ 75 |
| BROOM-CORN ................. | 4 @ 5½ | 3 @ 5½ |
| CABBAGES—℘ 100 ............ | 2 50 @ 5 00 | 3 00 @ 7 00 |
| ONIONS—℘ bbl................ | 1 50 @ 2 25 | 1 75 @ 2 50 |
| CELERY, per dozen........... | 75 @ 1 00 | 50 @ 75 |

Resumption of specie payments by the United States Treasury Department, which was formally inaugurated on the first business day of the current year, brought to an end all speculative dealings in Gold, the price of which, for two or three weeks previously, had scarcely varied from par, thus placing legal tender notes and Gold on the same basis, adding the Gold hoards to the available currency supplies in the country, contributing to the extraordinary ease in Money (in the way of loans and discounts), and relieving industrial and commercial interests from the prolific source of depression, derangement, and distress, of which our people have had such bitter experience in recent years. The promise of the new year is decidedly encouraging for legitimate business, in all the home markets. The rapid refunding of the public debt at a very low rate of interest is an important advantage to the producing classes who have to bear the burden of taxation. The circumstance itself very clearly indicates the high credit of the National Government in the money markets....Foreign market advices have been of a less favorable tenor, as to the position of American products, and have tended to check the export movement, especially in Breadstuffs, Provisions, and Cotton ...Flour in the local market has varied little in price, on a moderate trade in most kinds for home use and shipment. Wheat, particularly Winter, has been quite active, largely on speculative account, though toward the close, in good part also for export, leaving off, as a rule, firmly at current quotations. Corn has been less sought after, owing partly to the higher rates claimed. Rye has been slow of sale, and quoted weak. Barley, Peas, and Malt have been quiet at about former figures. Oats have been in good demand, and quoted stronger in price ...Provisions have shown more animation, the speculative temper having been more confident in the line of Hog products, which, though opening weak and irregular, left off buoyantly. Beef products were without change of moment, and not in much request. Butter, Cheese, and Eggs, choice qualities and marks, attracted a fair share of attention at somewhat higher prices....Hops have been in more demand, and Wool and Tobacco in moderate request, at somewhat irregular figures ...Cotton has been quoted lower, on a restricted movement....A comparatively limited trade has been reported in Seeds; while a fair inquiry has been noted for Hay and Straw at about steady rates....Ocean Freights have been further seriously depressed, but rallied toward the close, and left off in favor of ship owners, on a better demand for accommodation for early use. The recent severe storms, and resulting obstructions to railway traffic seriously delayed the transportation of produce from the interior to the seaboard, and thus adversely affected the volume of export operations.

## New York Live-Stock Markets.

RECEIPTS.

| WEEK ENDING | *Beeves.* | *Cows.* | *Calves.* | *Sheep.* | *Swine.* |
|---|---|---|---|---|---|
| Dec. 16 ............ | 11,053 | 183 | 1,349 | 30,836 | 51,545 |
| Dec. 23.............. | 10,187 | 215 | 1,516 | 25,596 | 50,647 |
| Dec. 30.............. | 9,966 | 57 | 806 | 15,598 | 32,926 |
| Jan. 7............... | 9,168 | 35 | 772 | 15,916 | 40,446 |
| *Total for* 4 *Weeks*.. | 40,374 | 490 | 4,443 | 87,946 | 175,564 |
| do. *for prev.* 4 *Weeks* | 38,133 | 657 | 6,779 | 93,301 | 211,613 |
| | *Beeves.* | *Cows.* | *Calves.* | *Sheep.* | *Swine.* |
| *Average per Week*..... | 10,093 | 122 | 1,111 | 12,986 | 43,891 |
| do. do. *last Month*.. | 9,533 | 164 | 1,695 | 23,325 | 52,904 |
| do. do. *prev's Month* | 11,207 | 127 | 2,995 | 33,529 | 49,464 |

The prices for the past four weeks were as follows:

| WEEK ENDING | *Range.* | *Larger Sales.* | *Aver.* |
|---|---|---|---|
| Dec. 16........... | 6¾@11 c. | 7¾@ 9¼c. | 8½c. |
| Dec. 23........... | 7 @11½c. | 8 @ 9½c. | 8¾c. |
| Dec. 30 .......... | 8⅓@11 c. | 7¾@ 9 c. | 8¼c. |
| Jan. 7............ | 7 @11½c. | 8 @ 9¼c. | 8½c. |

**Beeves.**—After an irregular market through the month, business closed dull, and with a downward tendency of prices. At the close the best steers sold at 11¼c. to dress 57 ℔s. to the cwt., but only 5 head of premium cattle of 1886 lbs. reached this price, the run being from 7½c. for 55 ℔s., estimated up to the limit mentioned. Colorado stock sold for 8¼c. for 55 ℔s. estimated. ....**Cows** have been in too great supply, and prices are down to $30 to $45 for common, and $50 to $60 for good. ....**Calves.**—Hog dressed sold at the close for 8½@9½c. for the best; choice milk fed live calves brought 7¼c., and common 5c. ℘ ℔. Grass calves sold for 2½@3c. ℘ ℔. alive....**Sheep.**—An advance in price has been marked for sheep. Common to fair sold for 3¾@4½c. ℘ ℔., and choice at 5⅜@5½c. live weight....**Swine.**—Live hogs are quoted at 3¾@3⅞c. ℘ ℔.; dressed sold for 4¾@5c. ℘ ℔. for light, down to 4c. for heavy, according to quality.

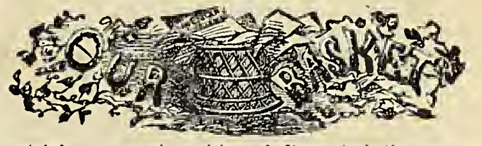
**The Horse Market.**—Business is so dull as to amount to an almost complete suspension. Quotations remain unchanged; draught horses are valued at $175 to $375 per head; farm horses at $150, and railroad horses at $120. Roadsters are worth from $400 to $1,000, according to speed and style. Coach horses for exportation have sold at $250 to $300 per head. The foreign business is dull, and values are declining. During the past year 3,028 horses have been exported, 1,833 of these having been taken for city "tram-roads." One whole cargo of 54 head was lost. 73 head of stallions and brood mares, mainly French, have been imported for breeding purposes.

### Prices of Feed.

| | |
|---|---|
| Bran, per ton........................ | $18.00@$20.00 |
| Middlings, per ton................... | 19.00@ 21.00 |
| Ground Feed, per ton................. | 15.00@ 21.00 |
| Linseed-oil-cake, western, per ton... | 44.00@ 47.00 |
| Cotton-seed-cake, per ton............ | 25.50@ 40.00 |
| Chandler's Scraps, per ℔............. | 3@ 4 |

### Prices of Fertilizers.

| | |
|---|---|
| No. 1. Peruv. Guano 10 p. ct. ammonia, standard, ℘ ton.. | $56.50 |
| do. do. Lobos, do. do. do..... | 47.50 |
| do. do. guaranteed, ℘ ton, cargo J | 56.00 |
| do. do. rectified, per ton, 9.70 p. c.. | 69.00 |
| do. do. do. do. 3.40 p. c. | 51.00 |
| Soluble Pacific Guano, ℘ ton.......... | 45.00 |
| Excelsior Fertilizer Works, Fine Ground Raw Bone,... | 55.00 |
| Mapes' Complete Manure (clay soils) per 1,000 lbs....... | 25.00 |
| do. do. do. (light soils) per 1,000 lbs....... | 25.00 |
| do. do. do. Grain and Grass, ℘ 1,000 ℔s..... | 25.00 |
| do. Fruit and Vine Manure, do. ...... | 17.50 |
| do. Bone, strictly pure, meal ..........per ton....... | 42.00 |
| do. Potato Manure....................per 1,000 lbs.... | 22.50 |
| do. Corn do. ....................per 1,000 lbs.... | 23.75 |
| do. do. do. medium......per ton | 36.00 |
| do. do. do. dissolved..... do. | 42.00 |
| Stockbridge Corn Manure, per acre.............. | 20.00 |
| " Potato do do | 10.00 |
| " Tobacco do do | 50.00 |
| " Rye do do | 10.00 |
| " Wheat do do | 15.00 |
| Bowker's Hill and Drill Fertilizer, per ton........ | 45.00 |
| Baugh's Raw Bone Phosphate, per ton............. | 33.00 |
| Baugh's Manure for Tobacco and Grain, per ton.. | 45.00 |
| Gypsum, Nova Scotia, ground, per ton.......... | 8.00 |
| Nitrate of Potash (95 per cent.), per lb. .......... | 9 @9½c. |
| Sulphate of Potash (potash 44 per cent) per lb.... | 3 @3½c. |
| do. do. (potash 27½ per cent) per lb.. | 1½@2 c. |
| German Potash Salts (potash 12 to 15 p. c. p. ton. | $15.00@18.00 |
| Muriate of Potash (potash 50 per cent). per lb.... | 1¾@2 c. |
| Nitrate of Soda, per lb.......................... | 3¾c.@4¼c |
| Sulphate of Ammonia (25 per cent.), per lb..... | 4¼c.@4¾c. |
| Dried Blood (ammonia 13 per cent) per ton...... | $40.00@45.00 |



*containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.*

# Continued from p. 47.

**Cure for Chicken Pox.**—"W. L. E." sends the following recipe as a remedy for the poultry disease called chicken-pox, that he says is more simple and will cost less than the one we recently published: "Sweet oil and turpentine, equal parts; apply to the sore spots with a brush. Too or three applications will cure the disease. Give a little tincture of iron in the water at the same time. I have just cured my chickens with this remedy."

**150,000,000 Bushels of Grain at a Single Port!**—Some striking figures are presented in the reported of grain receipts at N. Y. City alone. Reducing the 4,675,271 barrels of flour to its grain equivalent, and we find that during 1878, the canal and railroads delivered at this port no less than 149,270,128 bushels of grain of all kinds, against only 98,637,058 bushels in the previous (1877), a gain in round numbers of 50,000,000 BUSHELS, or 50 per cent!—a strong confirmation of our statements from time to time of the great crops of 1878. But few persons can have an adequate idea of even one million bushels. Here is a help to one's conception: Load this 150,000,000 bushels upon wagons, 30 bushels to each; arrange them in line, giving each team about 26½ feet (26²/₅), and the line of teams carrying this grain would extend 25,000 miles—*or, clear around the world!*

**Spring Chicken.**—"A. C.," Orange Co., N. Y. Light Brahmas are the favorites for "the production of spring chickens for broiling." This breed lays well in the winter, and the young birds mature very rapidly, so that at from 8 to 10 weeks old they are ready for market.

**Side-Cutting Saw-Mill.**—In looking over the advertisements, the reader will see in that of Chandler & Taylor an engraving of a curious looking saw-mill; this is the "Side-Cutting Mulay Saw-Mill," the makers of which claim superior merits for it. It cuts from the side of the log, the same as a circular saw, and will cut any size of log. It is adapted to farm engines, or can be driven by other power. The main frame is made wholly of iron, and the whole is a neat and compact machine.

**Cotton Seed Food.**—"Subscriber," Atascosa Co., Texas. Decorticated cotton seed is merely the seeds with the hulls removed. They can not be so wholesome food as cotton-seed cake, from which most of the oil has been expressed, as the former contains too much oil. Cotton-seed in bulk is so oily that it would be likely to heat in a short time and rapidly deteriorate in value. It is too concentrated and carbonaceous to be used as the principal food for any animals. Only small quantities of the oil-cake can be fed at a time, and even less of the whole seed. From a gill to a pint per day, for sheep and swine, and not over two quarts for a cow or horse, is all the oil-cake that can be fed profitably, and much less of the whole grains of decorticated seed should be fed.

**Black-Leg in Calves.**—"H. J.," O'Brien Co., Iowa. There is no certain cure for the disease known as black-leg in cattle, young or old. It may be prevented by not over-feeding, and giving full-grown animals which appear plethoric an occasional purgative of 12 ounces of salts, and a calf 2 to 6 ounces, according to age. A seton in the dew-lap is also beneficial as a preventive.

**A New Seed Sower.**—We have received a new seed sower from Benson, Maule & Co., of Philadelphia. It consists of a hopper with bag attached, from which the seed falls upon a horizontal iron disk. This disk is provided with guides that throw the seed to the front, right, and left, as the disk is rapidly revolved by means of a crank and cog-wheels. We have tested this machine on a floor only, but find that it works very well.

**Hog Cholera.**—The investigations of the "Hog Cholera Commission" confirm the position taken by Mr. Coburn in his work on "Swine Husbandry" (see Book-list), that the term "cholera" as applied to the disease, is a misnomer, as in nearly all cases the *lungs* are affected. The identity of the disease in various parts of the country has been established, and it is expected that the able gentlemen of the commission, Prof. Law, of Cornell, Dr. Detmers, of Chicago, and Dr. Salmon, of N. C., will be able to devise means for checking this epizootic, the cause of such immense losses to Western farmers.

**"The Blessed Bees,"** is the title of a work by John Allen, published by G. P. Putnam's Sons, N. Y. Whether John Allen and Limnswick, are assumed names for the author and his residence, we do not know. We do know that it is a most fascinating narrative, and is in bee-keeping, such a work as "Ten Acres Enough" was in fruit-growing. As to the accuracy of its teachings, our apiarian contributor must decide. That it will give a great stimulus to bee-keeping, we do not doubt, for the story is told in such a charming manner that it can not fail to captivate many, and induce them to follow the author's example. We have always regarded "Ten Acres Enough," as one of the most mischievous works ever published in the country. It gave only the bright side of the picture, and lured many into fruit-growing who miserably failed, and it was actually detrimental to the interest it sought to promote. The thought naturally occurs: will "The Blessed Bees" have a similarly untoward effect on bee-keeping? We think not—at least not with sensible people; the author states the causes of his success, and points out how others may fail. Thoughtful persons will read and consider these, as well as his accounts of success; unbalanced enthusiasts will disregard these, and miserably fail. On the whole, we think the author fairly states his case, and if his work leads to disappointment, it will be more the fault of the reader than of the author. Sent by the Orange Judd Company, post-paid, for the publisher's price, $1.00.

**A Manual of Georgia.**—Among the other good works done by the most efficient Commissioner of Agriculture of Georgia, Doct. Thomas P. Janes, is the compiling and publication of this "Manual." It is intended to supply information to immigrants who would go to, and capitalists who would invest in that State. None of the former slave States has made such advances since the war, as Georgia, and in the way of agriculture and manufactures has made most astonishing progress. The State has a wonderfully varied territory, and whether for agriculture, manufactures, or mining, needs only to have its advantages plainly stated, as they are in this Manual, to attract the attention of those who are looking for new fields for enterprise. In State encouragement to agriculture, Georgia is far in advance of many Northern States, and agriculture is there regarded as the basis of prosperity. Her present Governor was promoted to his seat from the presidency of the State Agricultural Society, and is heartily in sympathy with every agricultural improvement. The work does not state how it may be procured, but we presume by addressing the author at Atlanta.

**The Grasses of Tennessee.**—Every now and then we have some indication that the agriculture of Tennessee is rapidly improving. The latest manifestation, is a work by Col. J. B. Killibrew, Commissioner of Agriculture for the State, on "The Grasses of Tennessee; including Cereals and Forage Plants." The fact that such a work, of over 500 pages, should be prepared and published by the State, is most gratifying. It shows a desire for an improved system of agriculture, and it also shows an appreciation of the fact that the agricultural prosperity of a State as a whole—there are, of course, local exceptions—depends upon grass. The work appears to be well done, and to embody the present knowledge on the subject of which it treats. It contains useful statistics on the grasses of the State, embodied in a large number of replies to questions sent out, and several special articles by eminent agriculturists of the State. The performance is creditable alike to the Commissioner and to the State of Tennessee.

**A Good Tea Record.**—The Great American Tea Company has long advertised in our columns, and of course find many customers in this way. But we do not recall a single complaint from any of our readers of their dealings—not even of a parcel having gone astray. The latter fact is somewhat remarkable, for "accidents do happen in the best regulated families," sometimes.

**The Bean Weevil.**—That veteran horticulturist, Mr. Wm. Chorlton of Staten Island, writes: "You have sounded the warning regarding the Bean Weevil, none too soon. After reading your article on this pest, in the current number of the *American Agriculturist*, I immediately examined a package of Mohawk Beans, grown and ripened on my place last summer, and found it almost a moving mass of living insects, which, under the microscope, proved to be identical with the very correct, magnified illustration which you have presented."

**"Measuring and Marking Rafters."**—In the January number, 19th page, is given a method of "Measuring and Marking Rafters," with a description of an apparatus for the work. Mr. George H. Bradshaw, Fayetteville, Tenn., very courteously informs us that the device is one covered by a patent issued to himself for "Improvement in Bevels." This being the case, we at once inform our readers that the apparatus referred to can not be used without trespassing upon the rights of another, which we are sure they would not knowingly do. Among the many contrivances published by us, it is not strange that our editors or contributors should hit upon some that have been patented; indeed, the wonder is that the cases are so rare, but when they do occur, they fortunately injure no one, as the correction benefits the patentee by giving wide publicity to his invention.

**The Death of Col. Wilkins.**—In the death of Col. Edward Wilkins, which occurred in December last, at Chestertown, Kent Co., not only does Maryland lose one of her foremost horticulturists, but the horticulture of the country loses one of its most active and intelligent workers and promoters. Col. W. was regarded as the largest peach-grower in the country—and, consequently, of the world. He brought to fruit culture—for he did not confine himself to peaches—the enthusiasm, progressive spirit, and business-like method, which characterized him in other walks of life. A visit to his well-managed fruit-farm, with each detail described by the owner, is one of the events that we shall long remember.

**Brewer's Grains for Food.**—"H. B. J.," Boston. "When corn sells at 50 cts. per bushel, and wheat bran at $13 per ton," brewer's grains are worth from $15 to $17 per ton, according to careful analyses and estimates of the food constituents of those articles. Brewer's grains produce no ill effects on milch cows if not fed too liberally, nor do they injure the quality of the milk. When over 3 to 4 quarts per day have been fed, injurious results have followed. They are freely used, with this precaution, by many good dairymen.

**Lime and Barn-yard Manure.**—"J. F. W.," Paradise, Pa. As we have repeatedly written in these columns, the value of lime as a compost is not as plant food, but in its action upon the crude materials with which it is mixed, changing the form of, and making available, the plant-food contained in them. On clay-land lime has a similar effect, lightening up the soil, and by chemical action bringing out its fertility for use by the crops. On such soils, lime and barnyard manure would produce good results, applied separately or in a compost: if mingled in a compost, care must be taken to prevent waste of ammonia, by covering the heap with a thin layer of fresh earth.

**32-Rowed Corn.**—In response to our inquiries for 32-rowed corn, Mr. Jas. C. Greenler, of East Bethlehem, Pa., writes that his father and himself have raised it for 50 years. It is much liked in that region. Though the cars do not all have 32 rows, yet many of them do, and some have as high as 38 rows. This corn is said to have a comparatively small cob, and low-growing stalks, and to be particularly adapted to the West and South.

**Lamp Explosions.**—Several applications of the principle of the Safety Lamp, *i. e.*, that flame cannot pass through a fine wire guaze, have been made to Kerosene Lamps. So far as these prevent danger, should poor oil be accidentally used, they are beneficial. Still they should not lead to the use of poor oil, as only a part of the danger with that comes from the lamp; it is unsafe to have in the house at all. Use only good oil.

**The Year Book of Education,** 1878: E. S. Stiger, New York. "The Cyclopædia of Education," published a year ago, was heartily welcomed by teachers and all others connected with educational interests. This is now to be followed annually by a "Year Book" of facts of progress and experience in the whole educational field. We have the volume for 1878 before us, and it contains much of interest to teachers everywhere.

**Pigeon Show in New York.**—The "National Columbarian Society," hold their fourth annual exhibition at the New York Aquarium, Feb., 4th to 7th. This is open to the competition of the world, and promises an exhibition of fancy pigeons, that will be of interest to all lovers of these pets, whether breeders, amateurs, or admirers not so fortunate as to posess them.

**The Chicago Fat Stock Show,** held in December, was a decided success, and it is hoped that this is but the first of a long series of similar exhibitions. A remarkable and encouraging fact for breeders is that *quality* was considered before mere gross weight. Compactness, and lightness of horns and legs, are better indexes of the value of the meat than mere size, however pleasant it may be to see a great carcass. This same rule held throughout the show in cattle, sheep, and swine, and we hope it will influence breeders everywhere.

**Egg Foods.**—"C. S.," Rock Island, Ill. The "Imperial Egg Food," and "Animal Meal," are both good articles of their kind. It is not for us to say which is best. The "Animal Meal" is to be regarded more as a regular food, while the other is a condiment, to aid the digestion of other food, and act as a tonic to promote the general vigor of the system. We may say here, that we do not allow any preparation, whether intended for horses, cattle or poultry, to serve as "condition powder," "appetizer," or other stimulants to digestion, to be advertised, unless we know its composition. If we find it to be free from harmful ingredients, and to be composed of those things that may be safely and usefully administered, we allow the advertisement to appear. For this reason, we can not, without violating confidence, say of *what* some of the compounds are made. Of the Animal Meal, no secret is made; it claims to be dried flesh, ground bone and parched corn. We can say that not one of these contains anything which is not well known as useful its way, and may not be procured by any one. *But*, a long experience has shown us that if a compound is made up ready to use, with plain printed directions, it will be employed 20 times, where the same article if they had to be procured separately and mixed, would be used once. Holding that such condiments, judiciously administered, are useful, we admit advertisements of them—but, only on condition that *we* shall know their composition. One of our associates uses the "Egg Food" regularly, and likes it; another ascribes much of his success in poultry-keeping to the free use of "Animal Meal."

**Sale of Clyde Ayr, and Guernsey Cattle.**—A sale of "Clyde Ayr Cattle," imported by P. H. Fowler, is to take place at the auction-rooms of Messrs. Herkness, Philadelphia, early in February. The prices obtained for imported Guernseys and Jerseys at the recent sales seem large to the ordinary farmer, yet in comparison with an English sale reported in the London "Field," they are quite moderate. At this sale, the prices ranged from 20 to 255 guineas for the cows and heifers, and averaged nearly $450. Here the highest prices seldom go above $500, and the average is less than $300, notwithstanding the expense and frequent loss, incident to the 3,000 mile sea-voyage. Whether these prices are really large or small with reference to the actual value of the imported stock, in comparison with that bred in this country, we may have something to say at another time.

**The La Salle County,** Ill., Poultry Association, recently held a successful exhibition of thoroughbred poultry, and dogs of all valuable varieties. The success of this first attempt has inspired the managers to organize another show on a grander scale for next winter. Such exhibitions are always beneficial in their effect upon the industry they represent.

**Wet Boots.**—Several years ago a correspondent of the *American Agriculturist* gave our readers a hint which he picked up somewhere in Europe, which is worth repeating. Damp boots if left to dry as they will, shrink and become hard and difficult to put on again. When the wet boots are taken off, fill each one with *oats;* when dry the boots will be found in their original shape. The same quantity of oats may be used repeatedly for this purpose by spreading them where they can dry.

**Oil as Manure.**—"S. R. A.," Camden, S. C. There is, practically, no manurial value whatever in the oil obtained from cotton-seed, nor in any other true oil (fat). Most oils are composed only of the simple elements, hydrogen, oxygen, and carbon, which are all derived by plants from the atmosphere, and are no draft upon the resources of the soil. Therefore, "a ton of cotton-seed" loses no appreciable value as manure by having the oil expressed. Aside from the cost of extracting it, this cotton-seed oil is all clear profit to the farmer, as it takes very trifling fertility from his lands.

## The American Agriculturist Clubbed with Other Journals.

In response to numerous requests from our subscribers, relative to obtaining the *American Agriculturist* in connection with other publications, we have made arrangements with a few of the leading Magazines, which will be forwarded in combination with our Journal as follows: [Postage additional when sent to foreign subscribers.]

| *American Agriculturist with* | *Regular price for both.* | *The 2 supplied, post-paid, by us for* |
|---|---|---|
| Scribner's Monthly ($4.00) | $5.50 | $4.75 |
| Scribner's St. Nicholas ($3.00) | 4.50 | 3 90 |
| Demorest's Monthly ($3.00) | 4.50 | 3.90 |
| Harper's Monthly ($4.00) | 5.50 | 4.75 |
| Harper's Weekly ($4.00) | 5.50 | 4.75 |
| Harper's Bazar ($4.00) | 5.50 | 4.75 |
| Appleton's Journal ($3.00) | 4 50 | 3.90 |
| Popular Science Monthly ($5.00) | 6.50 | 5.50 |
| Atlantic Monthly ($4.00) | 5.50 | 4.75 |

On receipt of subscriptions as above, we deliver the names and pay to the offices of publication of the magazines ordered, and should there ever be occasion for complaints of non-receipt of such magazines, these should be made direct to their respective Publishers, and not to us.

"THE

# Farmer's Pride."

Fine Pictures add greatly to the attractiveness and cheerfulness of every home, however lowly it may be. **More than 250,000 excellent Chromos,** almost equal to Oil Paintings, such as the "Strawberry Girl," "Mischief Brewing," etc., now adorn the dwellings of the readers of the *American Agriculturist*, to whom they were sent exclusively. These are vastly superior to the cheap, dauby pictures subsequently scattered through the country, and which led us to cease distributing Chromos altogether.

We are happy to announce that we can now supply all the *bona-fide* subscribers of the *American Agriculturist* for 1879 with a **Superb Steel Plate, Line Engraving,** entitled "THE FARMER'S PRIDE," painted by the eminent Landscape Painter, JEROME THOMPSON, and Engraved on Steel by MARSHALL, whose great portraits of Washington, Lincoln, and others, have achieved for him A WORLD-WIDE REPUTATION.

The eminent French artist, Gustave Doré, styles him "the Master of Art in America," and European critics have united in pronouncing his portrait of Mr. Lincoln the **finest specimen of lineal art produced in this century.** Mr. Marshall regards this last work, "The Farmer's Pride," **equal to any of his previous efforts,** and it will unquestionably be so regarded by judges. The cost for engraving a *steel* plate ranges from $100 upward, according to the artistic execution and size. Mr. Marshall receives

## Three Thousand Dollars

for engraving *this* picture, which of itself indicates the excellence and value of the work.

## "THE FARMER'S PRIDE"

is executed in the **highest style of art on fine plate-paper,** *Twenty-Two* Inches by *Twenty-Eight* Inches (over 4 square feet). Some idea of the estimation in which the artist and the picture are held, may be had from the fact that thirty artist proofs of this engraving, with the signature of the Artist, have been subscribed for at **$25 each.**

No person other than a Subscriber can procure this picture at less than $5.00. It is now on exhibition at the reception rooms of the *American Agriculturist*, 245 Broadway. Subscribers will be supplied in the order of their application.

The usual price of steel-plate line engravings of the *size* and *character* of "The Farmer's Pride," **is Ten Dollars, but**

To all *bona-fide* subscribers of the *American Agriculturist* for 1879, we **will supply a splendid Copy of the Farmer's Pride, together with the Paper, one year post-paid, for $1.70,** the picture to be forwarded by mail, post-paid, securely rolled and protected in a mailing-tube, free of any extra charge.—We make this

## EXTRAORDINARY OFFER,

because we desire to place this beautiful picture in the homes of all our subscribers, and at the same time to increase the number of these subscribers for 1879 to a round

## TWO HUNDRED THOUSAND.

Though the *American Agriculturist* at the reduced price ($1.50 per annum), is cheaper than any similar journal in the world, and richly worth treble the price of the subscription, we cheerfully supply this magnificent engraving **at a great expense to ourselves,** believing that we shall be recompensed in the satisfaction afforded, and in the increased interest and efforts for the paper, of those subscribers who share in the distribution.

RECAPITULATION.

The *American Agriculturist* for 1879 postage prepaid.....**$1.50**

"The FARMER'S PRIDE" to other than Subscribers (postage prepaid).....**$5.00**

The *American Agriculturist* and "THE FARMER'S PRIDE" to one address, (postage prepaid on both).....**$1.70**

The two, when the picture is delivered at our office, 245 Broadway,.....**$1.63**

## The Steel-Plate to Subscribers in Clubs.

To accommodate our subscribers who send in their names in clubs, at club rates, we subjoin the following offers:

*Four* Subscribers for 1879, and *Four* Engravings, all *post-paid*, for..... $5.80

*Six* Subscribers for 1879, and *Six* Engravings, all *post-paid*, for..... 8.20

*Ten* Subscribers for 1879, and *Ten* Engravings, all *post-paid*, for..... 12.00

To Clubs of *Ten* Subscribers, post-paid, and *Ten* Engravings taken at the Office, or forwarded by Express in one package, expressage unpaid.....$11.30

☞ Clubs *above Ten* at the same proportionate rates.

## A Chance for Making Money.

During the next three months thousands of farmers and others in every part of the country will have more or less leisure time, which they can profitably employ in procuring subscriptions to the *American Agriculturist*. We are confident that almost everybody who sees the splendid Steel-Plate Engraving given to subscribers on payment of packing, postage, etc., will subscribe to the paper, in order to secure it. But the paper itself is worth five times more than the subscription price. The cost of the paper hitherto has been $1.60 for single subscriptions. Now for $1.70 both the Picture and the paper for 1879 are sent post-free. With the picture in one hand, and copies of the paper in the other, canvassers ought to be able to *daily* obtain a number of subscribers among their friends and neighbors. For any further particulars desired, address Orange Judd Co., 245 Broadway, N. Y.

## Catalogues Received.

We are always pleased to acknowledge the catalogues of our friends, but we do not like to have these announcements run through a whole year. Two months for the spring catalogues, and two for those issued in the fall, should comprise all. If our friends will send us their catalogues as soon as published, and not, as many do, wait until a list of their competitiors remind them to do so, they will be less likely to be overlooked.

SEEDSMEN.

Several of the seedsmen also offer greenhouse plants, as well as small fruits, but unless they issue separate lists for each department, we can make but one acknowledgment of their catalogue, under what appears to be the leading branch of business.

FRANCIS BRILL, Mattituck, L. I., N. Y.—Mr. Brill is a seed grower, and offers his specialties to the trade only. He offers the leading kinds of market garden seeds.

ROBERT BUIST, JR., 992 and 994 Market St., Philadelphia, Pa., publishes a compact catalogue of nearly 200 pages, full of useful matter.

WM. H. CARSON, No. 125 Chambers St., N. Y., has a list of novelties for 1879, in which he makes a specialty of the newer forage plants, including Pearl Millet, and several varieties of Sorghum, etc.

HENRY A. DREER, No. 714 Chestnut St., Philadelphia, Pa.—"Dreer's Garden Calendar," always a useful work, is this year much enlarged, and besides giving a catalogue of seeds, is full of instructive notes on cultivation.

L. W. GOODELL, Amherst, Mass., sends an illustrated catalogue of flower and vegetable seeds.

PETER HENDERSON & Co., No. 35 Cortlandt St., N. Y., give to their catalogue such a comprehensive title, "Everything for the Garden," that it is of but little use to specify, and we can only say that the contents appear to confirm the accuracy of the title, for we have rarely seen a list more full, and it is abundantly illustrated.

J. B. ROOT, Rockford, Ill.—Mrs. J. B. Root, continues the excellent "Garden Manual" of her late husband, and also supplies seeds of her own growing. Her "Manual" for 1879, is fresh, bright and instructive.

R. H. SHUMWAY, Rockford, Ill., in his "Garden Guide," gives a full illustrated catalogue.

CHARLES SIZER, Mount Lebanon, N. Y., sends an illustrated catalogue of Shaker's vegetable and flower seeds.

JAMES VICK, Rochester, N. Y., calls the first issue of his catalogue for 1879, "Vick's Floral Guide." While he gives the most space to flowers of all kinds, he by no means omits the vegetables. It is abundantly illustrated; and when we say it is like his former catalogues, only "a little more so," every one will want to see it.

E. WYMAN, JR., Rockford, Ill., sends his very neat catalogue of vegetable and flower seeds. Rockford appears to be a center for the seed business.

FLORISTS.

C. L. ALLEN & Co., Queens, L. I., N. Y., issue a catalogue of their specialties, which are mostly bulbs, and their stock is immense.

S. B. CASE, in his "Botanical Index," published quarterly at Richmond, Ind., while he offers his plants, also gives much interesting reading, and his publication is much more than a mere catalogue, as it gives horticultural and botanical articles of value.

HENRY A. DREER, No. 714 Chestnut St., Philadelphia, issues, as usual, a full list of florist's stock, including recent novelties, as well as standard sorts.

PETER HENDERSON, 35 Cortlandt St., N. Y., and Jersey City Heights, N. J., in his annual plant catalogue, gives the novelties of the year, and his general collection, and is in both departments as full as usual, which is saying all that can be said.

TYRA MONTGOMERY, Mattoon, Coles Co., Ill., continues to offer "Roses for the Million," as well as geraniums and bedding-out plants generally.

I. C. WOOD & BROTHER, Fishkill, Dutchess Co., N. Y., in their catalogue of greenhouse, stove, bedding, and herbaceous plants, offer a very full stock.

NURSERYMEN.

JOHN S. COLLINS, Moorestown, Burlington Co., N. J., in his list for the spring of 1879, offers a full assortment, with novelties, in the way of small fruits.

SAMUEL C. DE COU, Moorestown, Burlington Co., N. J., offers besides many new, and all the old varieties of small fruits, the leading varieties of orchard fruits.

GIBSON & BENNET, Woodbury, N. J., issue an illustrated catalogue of their specialties, and offer the standard trees and small fruits besides.

H. E. HOOKER, Rochester, N. Y., sends exceedingly neat circulars of the Brighton grape, and a wholesale price-list of general nursery stock.

WILLIAM PARRY, Cinnaminson, N. J., sends a special list, including the Kieffer pear, new grapes, etc.

JOHN SAUL, Washington, D. C., issues his wholesale special catalogue. That it is full in every department is a matter of course.

C. M. SILVA & SON, New Castle, Placer Co., Cal., send a very interesting catalogue, giving, of course, many kinds peculiar to the Pacific Coast.

STORRS, HARRISON & Co., Painesville, Ohio, give a catalogue so full of descriptive matter, that it is almost a treatise on fruit and ornamental trees, etc.

I. C. WOOD & BROTHER, Fishkill, Dutchess, Co., N. Y., wholesale lists of fruit and ornamental trees, etc.

EUROPEAN CATALOGUES.

HENRY KELLER & SONS, Darmstadt, Germany.—Wholesale list of tree and agricultural seeds.

CHR. LORENZ, Erfurt, Germany.—Catalogue of flower and vegetable seeds, with names in English.

ANT. MARCIER, Marseilles, France.—An illustrated bulb list, and special seeds and plants.

J. W. WUNDERLICH, Frankfort on Main, Germany.—Flower and vegetable seeds; a special American edition.

MISCELLANEOUS.

F. H. MCALLISTER, No. 49 Nassau St., N. Y.—Catalogue of a great variety of telescopes, microscopes, magic lanterns and all other optical goods.

OAKES MANUFACTURING Co., No. 111 Washington St., Boston, Mass.—An illustrated catalogue of a great variety of brackets, flower-stands, and other horticultural and miscellaneous wares, in wire and castings.

F. A. SINCLAIR, Mottville, Onondaga Co., N. Y., illustrates the various styles of his "Common Sense" chairs—and most excellent chairs they are—as we know from long usage.

TUTTLE KNITTING MACHINE; Lamb Knitting Machine Co., Chicopee Falls, Mass. Price-list and description of this excellent household implement.

IMPLEMENTS AND MACHINES.

CHICAGO SCRAPER AND DITCHER COMPANY, Chicago, Ill.—Describing the well-known scraper of this company, and their ingenious and effective screw-harrow, seed-sower and roller combined.

J. DICK & BRO., Canton O.—Catalogue of J. Dick's superior hay, straw, corn-stalk cutter, splitter, and crusher.

LITTLE GIANT TILE MILL, Bayliss, Vaughan & Co., Richmond, Ind.—A concise description and price-list of a superior machine.

MONITOR CORN-SHELLER, Livingston & Co., Pittsburgh, Pa.—An excellent machine, widely used.

PHILADELPHIA BROADCAST SEED SOWER; Benson, Maule & Co., Philadelphia, Pa.—Description of the machine, and testimonials from farmers in many sections; a large number from Australia even.

WHITNEY CUTTER-BAR AND MOWER, R. H. Buchanan & Co., Montreal, Can.—Illustrating a new arrangement of the knives, which are small and placed in sixes on wheels along the cutter-bar; these revolving, catch and cut the hay or grain.

LIVE STOCK—POULTRY, ETC.

W. H. CUMMINGS, Milldale, Conn.—An illustrated catalogue of Plymouth Rocks, of which he makes a specialty.

A. C. NELLIS, Mohawk Valley Poultry Yards, Canajoharie, N. Y.—Circular describing the Brown Leghorns.

DAVID A STEWART, Louisiana, Mo., has for his specialties, Plymouth Rocks and Brown and White Leghorns, and tells about them in an illustrated circular.

GEO. S. JOSSELYN, Fredonia, N. Y.—A neat catalogue of "high-class poultry," and some useful hints about the care and management of fowls.

ELM FARM POULTRY YARDS, West Troy, N. Y.—A well made-up illustrated list of poultry and poultry-house appliances.

CHAS. S. TAYLOR Burlington, N. J.—Catalogue of the Green Hill Herd of Shorthorn and Jersey Cattle. Handsomely printed, and conveniently arranged for reference.

## What They Say of

## "THE FARMER'S PRIDE."

From the multitude of very high compliments of our Engraving, that have appeared in many other Journals, we have only room for the following from the "Zion's Herald," of Boston, one of the leading Religious journals of the country, edited by Rev. Dr. Pierce. In the issue of Jan. 9 it says: "The most expensive and handsomest Engraving that we have seen offered as a premium in connection with a paper, is "The Farmer's Pride," which the Orange Judd Co. send out with their *American Agriculturist*. It is a large, finely executed Engraving, with a very appropriate and attractive subject. The happy little girl with her arms full of flowers, the center of a fine large agricultural scene, may well bear the title she has received from the artist. We do not like the idea of pictures to sell newspapers; but when these periodicals send out such fine engravings as our excellent friends of the *American Agriculturist* are doing this year, they place on home walls a thing of beauty *which is a joy forever*. We are far from displeased, with the eagerness with which these beautiful Engravings are sought....."

**Holstein Herd Book.**—We have received Vol. III. of the Herd Book published by the "Association of Breeders of Thoroughbred Holstein Cattle," from the Secretary, Charles Houghton, Boston. There are now recorded in the three volumes 369 bulls and 486 cows, and the Association congratulate themselves that interest in this breed is increasing. The strongest argument we have yet seen against calling this breed by the name, "Holstein," is in this very book, where a long quotation is made from the "Netherland Cattle Stock-Book," describing these same cattle. Throughout this five-page description the breed is called "Netherland Cattle," and no other name for them is mentioned. Since the "breed dates back more than two thousand years," and has always been known by this name, what right have Americans to change it, when they have been bred here less than 25 years? The common word in use by English speaking people everywhere for "Netherlands" is "Dutch," which gives the latter name the preference for the breed, over the borrowed one of "Holstein."

**Cows Gnawing old Boards.**—"L. T.," Blackwater, Del. When cows bite old boards it is a sign that they need something which they do not get in their feed. It would be well to mix a few pounds of fine bone-dust with salt and charcoal, and give each cow a handful to lick; also give some corn cobs or corn ears. This will appease their desire for wood or other coarse substances, and probably furnish what their food lacks.

**An Uncured Fistula.**—"C. M. W.," Circleville, N. Y. If a fistula has not been properly treated, and has been permitted to become closed before it is healed, the resulting swelling cannot be removed until the fistula is opened again and healed from the bottom. No liniment of any kind will be of use. It would be best to have a veterinary surgeon open the swelling deeply, remove any of the pipes which remain in it, discharge the matter, and keep the wound open until it is properly healed from the bottom. Plugs of lint dipped in compound tincture of myrrh and aloes should be kept in the opening, and the sore be cleaned out twice a day with a swab made of a soft sponge.

**Length of Floor for a Cow.**—"T. O'B.," Providence, R. I. A cow needs 3 feet of room at least, when kept in a stable in stanchions; 3½ feet is more than is necessary. The writer has 14 cows standing on a floor 50 feet long, and the space is ample for the comfort of the cows and that of the milkers. There is no necessity for partitions between the cows. The floor should be 7 feet from outer edge of gutter to outer edge of feed trough; 4½ feet is sufficient room from inside edge of the gutter to inside edge of the feed trough.

**Movable Fences.**—"W. K.," Morristown, N. J. There is a great variety of portable fences; the best are those commonly called hurdles, which are driven into the ground, or else wired to light stakes. There are wire fences made with slats attached which are easily transported, but otherwise the portable fences are too bulky to be carried far, and must be made on the farm where used.

**Herd Books.**—"L. P. H.," Allentown, Pa. All the different herd books are private property. There are three different Ayrshire Herd Books. Perhaps the most carefully edited of these is that conducted by Dr. E. L. Sturtevant, and it is upon the careful editing of a Herd Record that its chief value rests. There are two Jersey cattle registers. But all the Herd Books are recognized by breeders as authorities so far as they go.


## EMPLOYING SPARE TIME PROFITABLY.

At this season of the year, many Farmers and Farmers' Sons have a good deal of leisure time. Those who desire to improve this time to advantage to themselves are invited to immediately address the Publishers of the *American Agriculturist*.

Important

## To Advertisers.

The enormous edition of the *American Agriculturist* makes it necessary to go to press still earlier, in order to get the paper well printed and mailed by the day of date. The last pages **must** go to the electrotyper hereafter on or before the 10th of the month **Preceding Date,** and advertisements to be sure of insertion **must** reach us on or before that day. It will be far better that advertisements should reach us at an earlier day, as there will then be a choice of location, and better classification.

**Read the Advertising Columns.**—We have several letters now before us, asking where pigs, fowls, seeds, fertilizers, machinery, etc., can be procured. We consider all the information of this kind that is given in the advertising pages sufficient, if those needing anything will only look there; and can not find room to repeat what is already plainly told elsewhere. Every page of the *American Agriculturist*, including the covers, is interesting reading, and should all be carefully examined every month. In addition to looking after what one may want, the reading of what others have to say, in offering their wares, etc., usually starts up some new idea in the mind of the reader.—When writing to any advertiser, always tell him in what paper his advertisement was seen.

# GOOD NEWS!

for the Farmer. 50 to 100 per cent increase in

**Marketable Potatoes.**

as proved by two years' experience; without any outlay in money, costing nothing but time, to prepare the seed during winter or early spring.

For $1 (payable at maturity of the crop, if satisfactory). I will send full directions upon receipt of name and address.

**ISAIAH T. CLYMER,**
**Quakertown, Bucks Co., Pa.**

AGENTS WANTED FOR DR. MARCH'S NEW BOOK

# From Dark to Dawn

In this new volume the Popular Author of NIGHT SCENES IN THE BIBLE portrays with vivid and thrilling force the events of Sacred Truth, and adds fresh testimony to the beauty, pathos and sublimity of the Stories of the Bible. Agents will find this Book with its sparkling thoughts, beautiful engravings, and rich bindings, the best in the market. *Terms Liberal. Circulars Free.*

**J. C. McCURDY & CO., Philadelphia, Pa.**

## Scribner's Lumber & Log-Book.

OVER HALF A MILLION SOLD. Most complete book of its kind ever published. Gives measurement of all kinds of lumber, logs, and plank, by Doyles' Rule, cubical contents of square and round timber, stave and beading bolt tables, wages, rent, board, capacity of cisterns, cord-wood tables, interest, etc. Standard Book throughout United States and Canada.

Ask your bookseller for it, or one sent by me for 35 cents, post-paid.

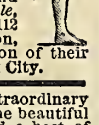
**G. W. FISHER,**
**P. O. Box 238, Rochester, N. Y.**

## Book of Gummed Household Labels.

This Book contains gummed and printed ready for use over 650 labels for Household Stores. Agents wanted in every State and Town. Send 35c. for sample copy and circular.

**CORNELL & SHELTON, Birmingham, Conn.**

**Marks' Patent First Premiums.** Artificial Limbs, with Rubber Hands and Feet. The most *Reliable, Comfortable,* and *Useful.* Illustrated Pamphlet of 112 pages, containing valuable information, sent *free* to those giving satisfactory description of their case. **A. A. MARKS, 575 Broadway, New York City.**



DEMOREST'S MONTHLY MAGAZINE.—Extraordinary attractions in the February number. See the beautiful and artistic Oil Pictures, Steel Engravings, and a host of Literary Novelties. Single copies, 25 cents; yearly, $3, with the two oil pictures, "Rock of Ages" and "Lion's Bride," 17x21 inches, to each subscriber. Address W. JENNINGS DEMOREST, 17 E. 14th St., N. Y.

**$30,000.** Best Farm in Ohio, the Miami Valley. For full particulars, address MRS. T. CURRAN, P. O. Box 1789, New York.

## ENSILAGE.

The Preservation of Corn-Stalks and other green fodder crops in air-tight silos.

A full account of French and American methods and results. History of the discovery. The most important information for farmers and dairymen ever published. A complete agricultural revolution.

Illustrated. Cloth. Price, $1. Postage free.

Send for Prospectus and Contents.

**J. B. BROWN, 55 Beekman St., New York.**

## TOLEDO WEEKLY BLADE.

**(NASBY'S PAPER.)**

The largest and best family paper published in the United States. Send postal for specimen. Also send names of a dozen of your reading friends. We also mail, postpaid to any address, the choicest books published, at half price. Send for catalogue. Address THE BLADE, Toledo, O.

**$25** FOR A N. Y. SINGER SEWING MACHINE, with drop-leaf table, cover, and case of two drawers, as shown in cut. Warranted New, Latest Improved, and Perfect. No pay asked till seen and tried. Send for circular and save money. Address ECONOMY EMPORIUM, 199 Dearborn St., CHICAGO.

## NOTICE!

Acting upon the urgent request of numerous correspondents, I have extended my Holiday Offer for a **Limited Period.** Order at once, pay only after you have fully tested the instrument at your own home. **New Pianos, $125, $135, $145** and upwards. **New Organs, $65, $75, $85, $97,** etc. Latest Illustrated Newspaper with much information **free.** Address,

**DANIEL F. BEATTY, Washington, N. J.**

## WOOD'S HOUSEHOLD MAGAZINE

(Vol. 16) for 1879, enlarged to 100 pages, contains the cream of the world's literature arranged in twenty departments, for the entertainment, instruction, and profit of every reader. Yearly, $2.00; sample copy, 10 cents. Order from newsdealers or direct. Unprecedented terms free to agents. Send 10c. for outfit, worth $1. S. S. WOOD, Tribune Building, N. Y. City.

**BUY MARYLAND FARMS! $7 TO $25** per acre. Catalogues sent free.

H. P. CHAMBERS, Federalsburg, Md.

**THE WHITE RUSSIAN SPRING WHEAT**

Has been recommenced in all parts of the U. S. by

**2000 FARMERS**

as the best and most productive variety ever introduced. The following parties have written us that their Russian Wheat *produced twice as much per acre* as other varieties, on the same land and culture: Thomas S. Sterling, Tracy, Tama Co., Ia.; C. Tomlin, Evansville, Wis; C. W. Halstead, Potter; Yates Co., N. Y.; A. B. Clapp, Meriden, Ill.; Chas. Eyes, Brockway, Mich.; M. Roberts, McCamleyville, Minn., and hundreds of others we cannot publish here.

TAYLORVILLE, Ill., Oct. 7, 1878. W. E. Stitt *Dear Sir:* I purchased one bushel of your White Russian Wheat, which I sowed on one acre of land, and harvested 30 bushels. My fall wheat produced but 14 bushels per acre, and was on better land than the Russian. I will do all that is honorable in the way of recommending it. Yours, respectfully, JAS. MORROW.

ORAN P. O., Ontario, Cananda, Oct. 18, 1878.—*Dear Sir:* I purchased of you last spring two bushels of the Russian Wheat, which I sowed on one acre for trial. The result was a yield of 38½ bushels, which is ahead of any other wheat here, either fall or spring. I am well satisfied with the Russian, and can indeed highly recommend it. Yours truly, JOHN GREEN.

The above are samples of hundreds of letters received from all parts of the country from our customers of last year. We send a sample of the Russian Wheat with a circular containing prices, testimonials, etc., to all who enclose a three cent stamp. Address **W. E. STITT,** 228 Lake street, Chicago, Ill.

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of all kinds, $5.00 per 100; cheaper than ever before. Send for Lists, Samples, 14 by mail for $1.10.

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**FROM CAPE BRETON ISLAND.**

(Copy.) The seeds received from Wm. Rennie (Toronto) are the best ever introduced here. (Signed) R. Elmsly. Send for Catalogue, addressing, **WM. RENNIE, Toronto, Canada.**

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**Chester Swine** sold and shipped into the various States and Canadas, for breeding purposes, in one year. A few years ago the dark hogs were in greatest demand, but within a year there has been a reaction. As a result, the following is a sample of what is being received from different parts of the country:—OHIOVILLE, Beaver Co. Pa.—Jan. 3d, 1879.—*Mr. L. B. Silver, Cleveland, O.:* SIR—Please send me price list of your "OHIO IMPROVED CHESTER Swine." I want to get a pair of pigs in the spring, or may be more than one pair. I think your breed of swine will take here now well, for the people are about tired of the Black hogs. Yours, truly, R. D. DAWSON.—Send stamp for description and price list of early spring pigs and fancy poultry. Address **L. B. SILVER, Cleveland, O.**

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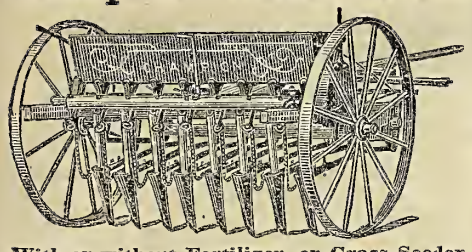
THE
## Champion Grain Drill.



**With or without Fertilizer, or Grass Seeder Attachments, or Gum Spring Hoes.**

It has a **perfect force feed** Grain Distributor that will sow accurately all kinds of grain without the least injury to the seed.

**UNEQUALED AS A CORN PLANTER.**

Fertilizer attachment **can be relied upon** to sow all kinds of commercial manures whether dry or damp in any desired quantity.

**Draft Light, Construction Simple, but durable.** Liberal discount to cash customers.

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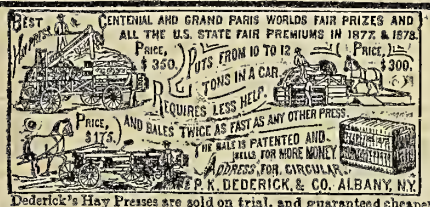


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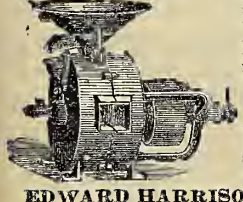

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Capacity of 12-inch Mill, 2 to 12 bns. per hour; capacity of Light 20-inch Mill, 6 to 40 bus. per hour.

Wholesome Bread, Fine Flour, High Speed, Quick Work, and Economical Milling Fully Established. For illustrated catalogue, describing the Harrison System, Address Estate of

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*Adjustable for all sizes of corn.* Buy the **Peerless Sheller.** The easiest operated, and most perfect working. Shells 60 *Bush. Ears per hour.* Separates corn from cobs and chaff, is turned and fed by one person. Address

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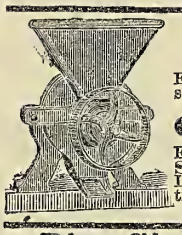

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Every machine is guaranteed to give satisfaction, or money paid promptly refunded.

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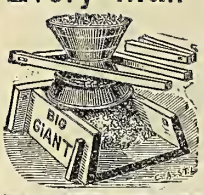


The only Mill that will grind Corn with Shuck on without extra expense. The only Mill grinding Corn and Cob successfully that will grind Shelled Corn fine enough for family use.

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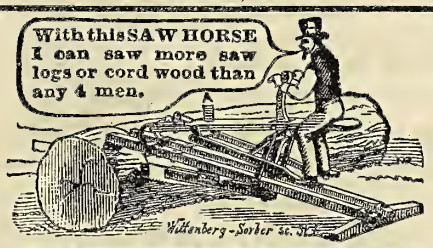


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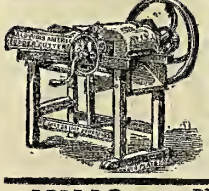

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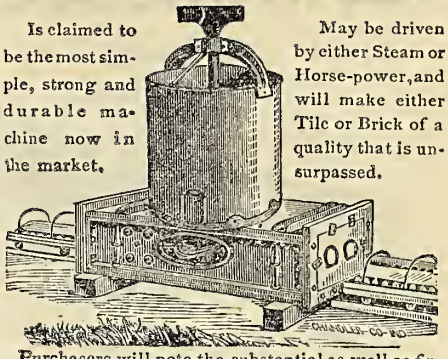
Is claimed to be the most simple, strong and durable machine now in the market.



May be driven by either Steam or Horse-power, and will make either Tile or Brick of a quality that is unsurpassed.

Purchasers will note the substantial as well as finished make of this machine; the easy accessibility of its working parts; the means of keeping its plunger-chamber to fit closely, without reference to age or wear; and its general suitability for making Tile at the lowest cost. SEND FOR CIRCULARS.

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The body of mill is cast cylindrical, the strongest known shape. It is bored out and plunger accurately fitted. Having broad bearings, it prevents wear and mud leakage. The shaft is of forged steel, running on a brass box. The mill is accessible in all its parts. Two horses operate it with ease. We claim, extra strength, durability, and ease of working. Larger Tile can be made. More work with same power. Send for Circulars to **BAYLIES, VAUGHAN & CO.,** RICHMOND, IND.

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**222 First Premiums. 15 Silver Medals.**
**Gold Medal at Md. Institute in 1878,**
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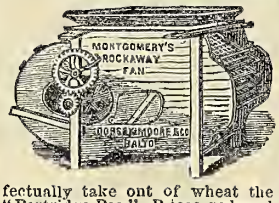


No good Farmer can afford to be without one of these Fans! This universally known Fan has been victorious in every contest, and has the approval of thousands of Farmers all over this country. It is the best and cheapest Fan made for the farmer and planter. It is the only Fan that will effectually take out of wheat the great Virginia trouble "Partridge Pea." Prices reduced. Send for circulars and price lists to the manufacturers,

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Manufacturers and Dealers in Standard Goods. Gen'l Agts. for **Cornell Shellers, Big Giant Corn and Cob Mills, Studebaker Wagons, &c.**

**IRON SCREW WIND POWER,**
**With Corrugated Iron Fans.**

The only Wind-mill using a propeller-shaped wheel, by means of which the sail does its proportion of work at every point. Has an open center, is Vaneless, Storm-proof, and Self-governing. The Motion is ALWAYS STEADY, the Speed being Governed by the lever rod, and the mill DOES NOT STOP OR RUN ANY FASTER, NO MATTER WHAT THE GALE IS. Send for Catalogue for full particulars. Address.

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(17 sizes—from 1 Man to 45 Horse Power.)

**$3,500,000** WORTH NOW IN USE.

The only wind-mill awarded **TWO MEDALS** and **TWO DIPLOMAS** at the International Exhibition, Philadelphia, 1876. And the only Mill recognized in the distribution of Medals at L'Exposition Universelle, Paris, 1878.

This mill is constructed on scientific principles, and guaranteed to do good work in any kind of wind. It is also guaranteed to be well made of good material; to be perfectly self-regulating; to possess more power; to be more reliable in all kinds of winds, than any other mill made, and further than this, it is **Guaranteed NOT TO BLOW DOWN.**

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## PORTABLE & FARM ENGINES.
*USING PATENT ANGULAR DRIVING BELT.*
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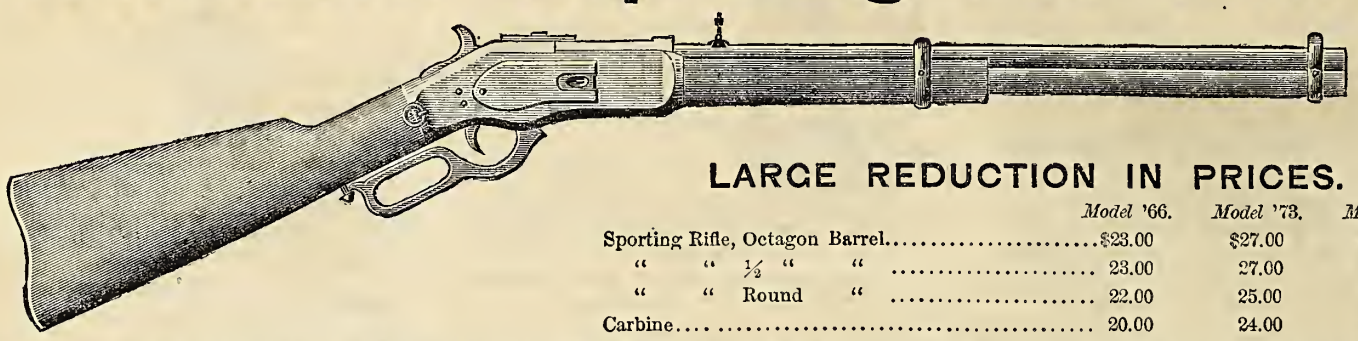

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| Sporting Rifle, Octagon Barrel | $23.00 | $27.00 | $35.00 |
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**For Business Uses.**

**Special Offer. OUR NEW IMPROVED DOUBLE COILED METALIC TELEPHONE** is **the finest in the world,** and the only completely satisfactory low priced instrument; with **Spring Call Attachment,** made by **practical machinists** on scientific principles; warranted to work **one mile,** unaffected by changes in the weather. We will send to one address **one sample set,** comprising two Telephones, two walnut holders, six copper bound insulators and 200 feet heavy wire, at **25 per cent. discount** from **regular rates,** which is **$3,** for the **$4.** instruments. This offer is made for a limited time only, simply to introduce our instruments; they will soon be sufficiently well known to sell through the trade, and we shall then be obliged to strictly maintain the retail price. Any person of ordinary intelligence can put them up by following directions sent with each pair. We have sold during the last three months nearly **1000** of these instruments, and have **hundreds of testimonials** from all parts of the country. We **guarantee** all instruments sold. For any Telephone that fails to work, we will **refund the money** and pay all charges. Ask any Commercial Agency, and you will find we are good for all we agree to do. Postage 20c. Name this paper when you write. **Kent, Woodman & Co., 25 Congress St., Boston, Mass.**

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**LATHES, CARVERS, AND ENGRAVERS' TOOLS, MACHINISTS' and MECHANICS' TOOLS, FARMERS' TOOLS, ARCHERY, ETC.**

All kinds of Scroll Saws kept in stock, and all at manufacturers' prices. I am headquarters for Scroll Saw Goods and sell only good Tools. Illustrated catalogue free. JOHN WILKINSON, Importer and Manufacturer, 77 State St., Chicago.

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**FOR EGGS, BUTTER, FRESH OR SALTED MEAT, Etc.**

Perfectly tasteless, and preserves the color. Keeps the brine clear, free from scum, and brine and meat from souring. So salted, it is in taste and flavor much sweeter than ordinary. Price 50 cts. per Box. Sent by mail to any address, postage prepaid. Agents wanted.

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**Madam Foy's Improved CORSET**

**SKIRT SUPPORTER**

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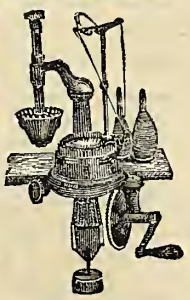

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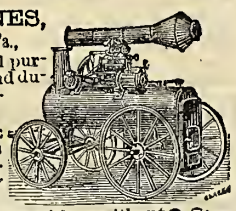
Cheapest and best for all purposes—simple, strong, and durable. Also *Traction Engines* for common roads.



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Vertical Engines, with or without wheels, very convenient, economical and complete in every detail, best and cheapest Vertical in the world. Fig. 1 is engine in use. Fig. 2 ready for road.

Boiler 6 cyl. in. larger than other makers.

Fig. 2.

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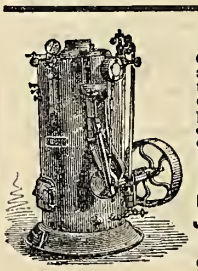

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In every land where water freezes, the **Barney & Berry** skates are known.

We will *deliver free of charges,* to any address east of the Mississippi River, and at more distant points, for a trifling addition, any pair of these celebrated skates.

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Patented February 25, 1875.

**Will make your Hens lay. Permanently** benefits **laying Hens, Moulting Fowls, and Young Stock.** It makes the Poultry Yard the **best paying part of the farm.** Packages sent prepaid for 50c. and $1.00. Twenty-five pound kegs, by freight, $6.25. Special arrangements with freight and express companies enable us to obtain very low rates for distant orders. Sold by Agricultural Stores, Grocers, Seedsmen, and Druggists.

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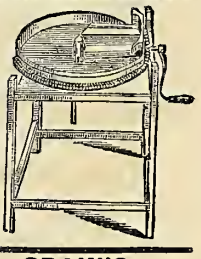

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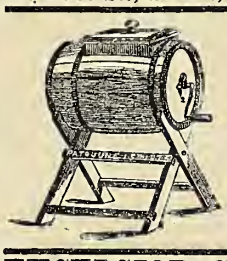

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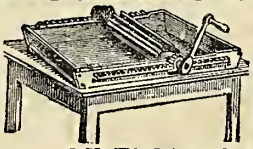

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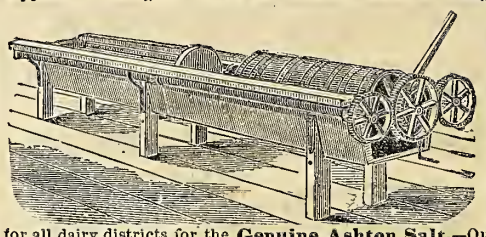

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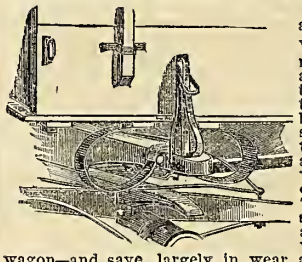

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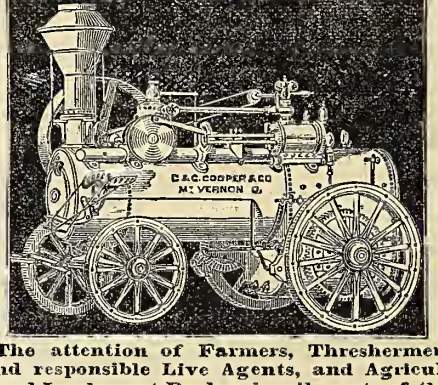


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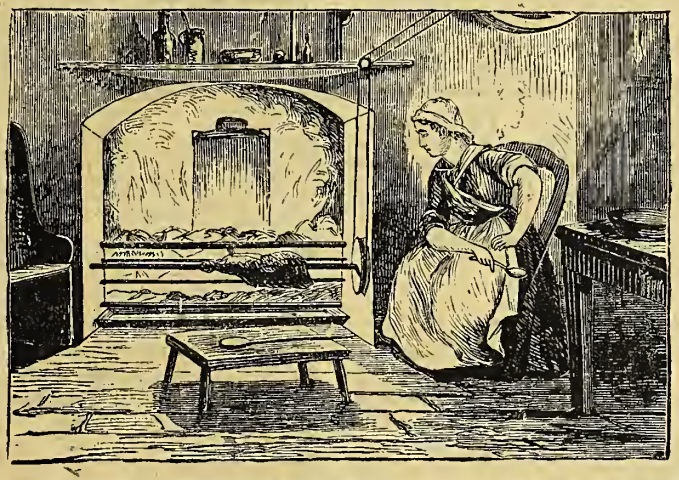

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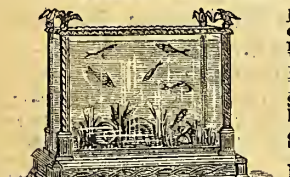

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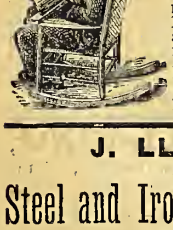

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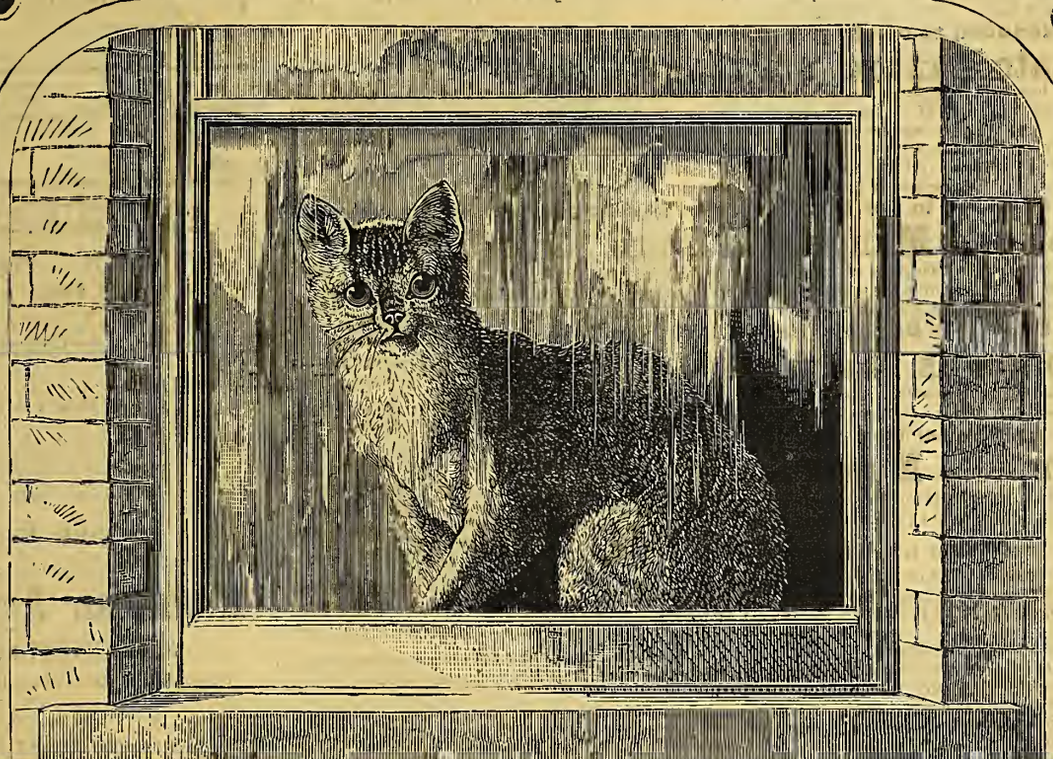

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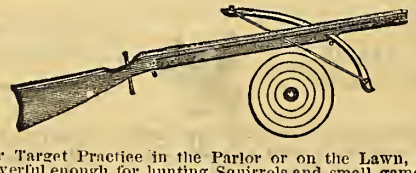

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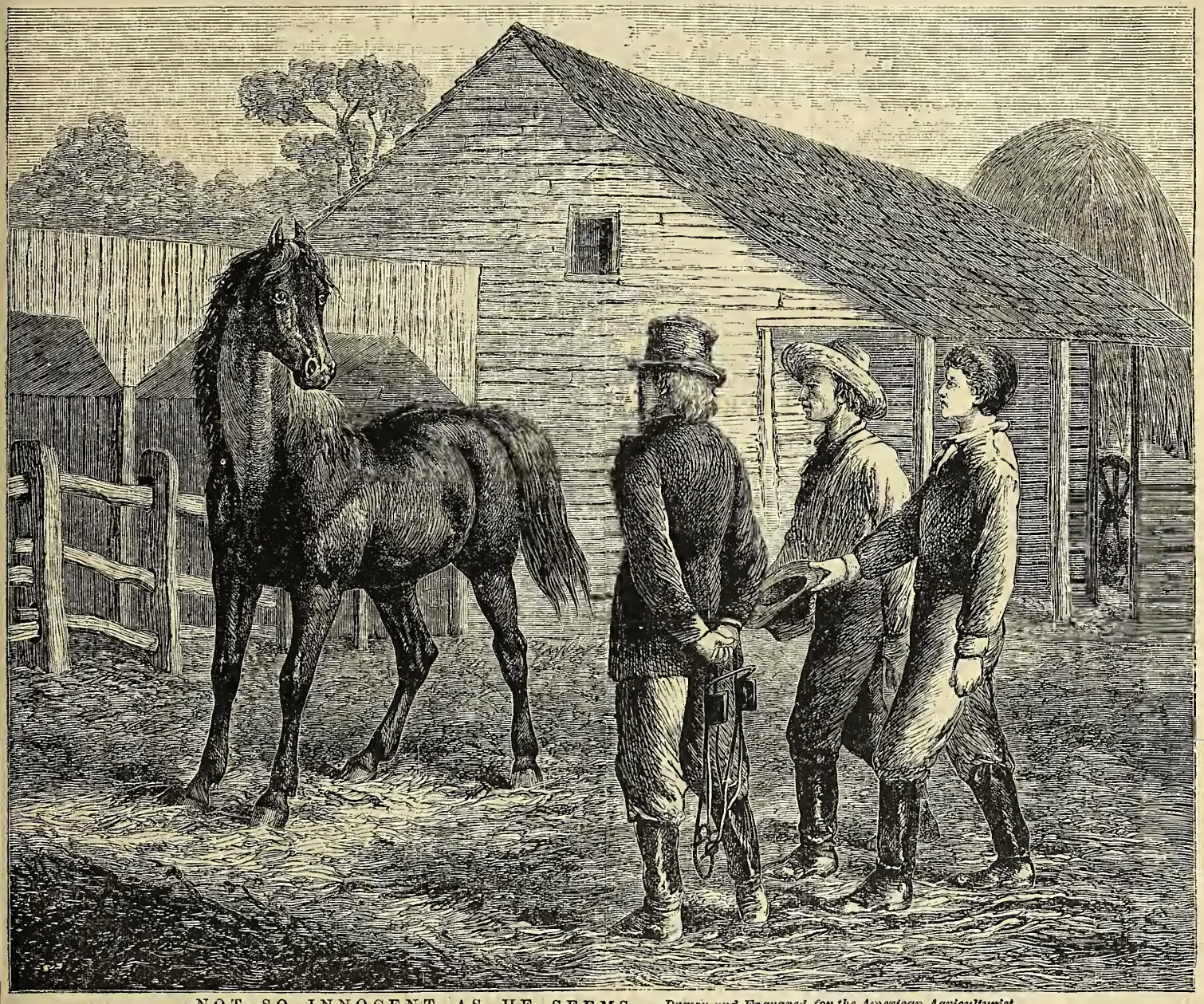

NOT SO INNOCENT AS HE SEEMS.—*Drawn and Engraved for the American Agriculturist.*

### Training and Education Make the Horse.

The face of a horse is as good an index of his character as is that of a man; the eye, especially, marks his disposition. "A full and clear eye, says Stonehenge, "with a soft gazelle-like expression, is scarcely ever associated with a bad temper." Such an eye, also, "will most frequently continue sound, if the management of the horse to which it belongs is proper in itself." Every good horseman learns, sooner or later, to carefully note this organ in the examination of a horse, as an index of temper, and latterly more attention has been given to breeding for mental qualities as well as for form. And why not, when we value intelligence and a good disposition so highly? Why not devote some thought to the mind of these animals, which, with no "opportunities," often display more intelligence than their lords and masters? Our artist and engravers have skillfully portrayed a colt whose eye evidently is not "soft and gazelle-like," but he has a face full of intelligence and spirit. He is, perhaps, not vicious, but his education and training have been neglected, and he knows the virtues of his hoofs and teeth in keeping off those he pleases to consider his enemies. The catching of such a colt, even in the trap into which he has been enticed, is no easy master, at least for the men who have him in charge, though a Mexican or Indian would quickly show how it could be done with the lasso, which they learn to throw with accuracy almost as soon as they can walk. This fine fellow watches the motions of his would-be captors with suspicion, evidently conscious of the concealed bridle and empty hat. As he stands there with muscles rigid, ready to run or to kick, and every sense on the alert, as if he would show them he is "not so innocent as he seems," he makes a striking picture. But we doubt the desirability of having such animals on the farm. We do want that spirit, energy, and conscious strength, but it should be in a different condition. The fault is probably in the owner and not in the colt. We know of a trainer, who, when he goes into the pasture among his colts, will have every one of them about him rubbing their noses against him, and each jealous of attentions bestowed upon the others. His methods are simple: they are, to begin gentling and training the colts at a month old; kindness; firmness; never deceiving the animal; encouraging and rewarding obedience, and punishing disobedience rarely by the whip, but usually by abstaining from caresses and the tit-bits given to reward him at other times. These are the chief means necessary in making a wild colt docile without crushing his spirit. And such training makes all the difference between a worthless and a valuable horse; for the same qualities that make the animal vicious and unmanageable, will, under proper treatment, make a spirited, enduring horse, possessing intelligence, and appreciative of praise or blame.

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## Calendar for March, 1879.

| Day of Month. | Day of Week. | Boston, N. England, N. York State, Michigan, Wisconsin, Iowa, and Oregon. Sun rises. | Sun sets. | Mo'n sets. | N. Y. City, Ct., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois. Sun rises. | Sun sets. | Mo'n sets. | Washington, Maryland, Virginia, Kentucky, Missouri, and California. Sun rises. | Sun sets. | Mo'n sets. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | H. M | H. M | H. M. | H. M | H. M | H. M. | H. M | H. M | H. M. |
| 1 | S | 6 35 | 5 50 | 4 40 | 6 34 | 5 51 | 1 33 | 6 32 | 5 53 | 1 27 |
| 2 | S | 6 34 | 5 51 | 2 35 | 6 32 | 5 52 | 2 29 | 6 31 | 5 54 | 2 22 |
| 3 | M | 6 32 | 5 52 | 3 25 | 6 31 | 5 53 | 3 18 | 6 29 | 5 54 | 3 13 |
| 4 | T | 6 30 | 5 53 | 4 7 | 6 29 | 5 55 | 4 2 | 6 28 | 5 56 | 3 57 |
| 5 | W | 6 29 | 5 55 | 4 43 | 6 28 | 5 56 | 4 39 | 6 26 | 5 57 | 4 35 |
| 6 | T | 6 27 | 5 56 | 5 14 | 6 26 | 5 57 | 5 12 | 6 25 | 5 58 | 5 9 |
| 7 | F | 6 25 | 5 57 | rises | 6 25 | 5 58 | rises | 6 24 | 5 59 | rises |
| 8 | S | 6 24 | 5 58 | 6 32 | 6 23 | 5 59 | 6 32 | 6 22 | 6 0 | 6 32 |
| 9 | S | 6 22 | 5 59 | 7 50 | 6 21 | 6 0 | 7 49 | 6 20 | 6 1 | 7 48 |
| 10 | M | 6 20 | 6 1 | 9 10 | 6 20 | 6 1 | 9 7 | 6 19 | 6 2 | 9 4 |
| 11 | T | 6 19 | 6 2 | 10 30 | 6 18 | 6 2 | 10 26 | 6 17 | 6 3 | 10 21 |
| 12 | W | 6 17 | 6 3 | 11 48 | 6 16 | 6 3 | 11 42 | 6 16 | 6 4 | 11 37 |
| 13 | T | 6 15 | 6 4 | morn | 6 15 | 6 5 | morn | 6 15 | 6 5 | morn |
| 14 | F | 6 14 | 6 5 | 0 59 | 6 13 | 6 6 | 0 53 | 6 13 | 6 6 | 0 46 |
| 15 | S | 6 12 | 6 6 | 2 1 | 6 11 | 6 7 | 1 54 | 6 11 | 6 7 | 1 48 |
| 16 | S | 6 10 | 6 7 | 2 51 | 6 10 | 6 8 | 2 43 | 6 10 | 6 8 | 2 39 |
| 17 | M | 6 8 | 6 9 | 3 31 | 6 8 | 6 9 | 3 26 | 6 8 | 6 9 | 3 21 |
| 18 | T | 6 7 | 6 10 | 4 3 | 6 6 | 6 10 | 4 0 | 6 6 | 6 10 | 3 55 |
| 19 | W | 6 5 | 6 11 | 4 30 | 6 5 | 6 11 | 4 27 | 6 5 | 6 11 | 4 24 |
| 20 | T | 6 3 | 6 12 | 4 53 | 6 3 | 6 12 | 4 51 | 6 3 | 6 12 | 4 50 |
| 21 | F | 6 1 | 6 13 | 5 14 | 6 1 | 6 13 | 5 14 | 6 2 | 6 13 | 5 13 |
| 22 | S | 6 0 | 6 14 | sets | 6 0 | 6 14 | sets | 6 0 | 6 14 | sets |
| 23 | S | 5 58 | 6 15 | 7 23 | 5 58 | 6 15 | 7 21 | 5 59 | 6 15 | 7 19 |
| 24 | M | 5 56 | 6 17 | 8 25 | 5 57 | 6 16 | 8 22 | 5 57 | 6 16 | 8 18 |
| 25 | T | 5 54 | 6 18 | 9 27 | 5 55 | 6 17 | 9 22 | 5 55 | 6 17 | 9 18 |
| 26 | W | 5 53 | 6 19 | 10 28 | 5 53 | 6 18 | 10 23 | 5 54 | 6 18 | 10 18 |
| 27 | T | 5 51 | 6 20 | 11 29 | 5 52 | 6 19 | 11 23 | 5 52 | 6 19 | 11 17 |
| 28 | F | 5 49 | 6 21 | morn | 5 50 | 6 20 | morn | 5 51 | 6 30 | morn |
| 29 | S | 5 47 | 6 22 | 0 25 | 5 48 | 6 21 | 0 19 | 5 49 | 6 21 | 0 12 |
| 30 | S | 5 46 | 6 23 | 1 17 | 5 47 | 6 22 | 1 10 | 5 48 | 6 22 | 1 4 |
| 31 | M | 5 44 | 6 25 | 2 1 | 5 45 | 6 24 | 1 55 | 5 46 | 6 23 | 1 50 |

PHASES OF THE MOON.

| MOON. | D. | BOSTON. H. M. | N. YORK. H. M. | WASH'N. H. M. | CHA'STON H. M. | CHICAGO. H. M. |
|---|---|---|---|---|---|---|
| 1st Quart | 1 | 3 14 mo. | 3 2 mo. | 2 50 mo | 2 38 mo. | 2 8 mo. |
| Full M'n | 8 | 8 25 mo. | 8 13 mo. | 8 1 mo | 7 49 mo. | 7 19 mo. |
| 3d Quart. | 14 | 10 57 ev. | 10 45 ev. | 10 33 ev. | 10 21 ev. | 9 51 ev. |
| New M'n | 22 | 4 20 ev. | 4 8 ev. | 3 59 ev. | 3 44 ev. | 3 14 ev. |
| 1st Qnart | 30 | 8 21 ev. | 8 9 ev. | 7 57 ev. | 7 45 ev. | 7 15 ev. |


# AMERICAN AGRICULTURIST.

NEW YORK, MARCH, 1879.


## Hints for the Work of the Month.

[*The Hints and Suggestions in these columns are never copied from previous years, but are freshly prepared for every month, from the latest experience and observations, by practical men in each department.*]

*Spring begins* the 20th of March, at 6:20 P. M., but spring work began some time since in the South and Southwest. In the North winter yet lingers, but the time for the first spring work has come.

*Lay plans for the Year* without delay. The forehanded man works to great advantage. He loses no time; everything is done at the proper moment.

*Hired Men* are now engaged to begin work April 1st. The season usually consists of 8 or 9 months, leaving the men idle about one quarter of the year. It is well for employers to consider if they can not better afford to give steady employment. There is work to be done at all seasons if sought for.

*The change of Weather* often exposes men working in the open air to great risks. To keep the feet dry is very necessary. A well-drained barnyard is one preventive of wet feet, and wearing rubber boots wherever water or mud is to be encountered, is another. The latter will serve in all cases.

*Horses' Feet* should be well cared for in the slushy condition of the roads. When brought in from work, horses should be well rubbed down with a piece of blanket, and the feet and legs thoroughly dried. The friction will remove the chilling effect of the cold slush; but if this is left upon the feet, the skin may become diseased, and cracked heels or foot fever result from the carelessness.

*Surface Water* is to be let off from fields and roads before the ground is deeply thawed. This will avoid wasteful and annoying washing of gulleys.

*Drains* should be inspected and the outlets cleared of clogging ice and snow.

*Clover Seed* may be sown this month upon the bare ground after a light frost. By sowing upon a light flurry of snow, upon which the seed can be seen, a very even cast may be made. The "Cahoon" and the "Philadelphia" broadcast sowers are good machines for sowing seed very rapidly by hand.

*Harrowing Fall Grain* is in order as soon as the ground is dry. It will help to cover up plants that have been loosened by heaving, and will aid weak plants to push ahead. A dressing of artificial fertilizers will be a great benefit to these crops.

*Artificial Fertilizing* seems to be the most important question now before farmers. It is a comparatively new thing here. But there is no other way to procure the necessary manure to cultivate all our fields, and to get the largest crops. Half methods will no longer pay. We have a wide market to fill and prices are low. To make things even we must produce more. It is well to consider seriously how far one can experiment with artificial fertilizers this season as a guide for future use. The article by Prof. Atwater on page 91 may be studied with profit.

*A Caution.*—Buy no fertilizers without knowing precisely what they consist of. Peruvian Guano, and other reliable fertilizers, when genuine, always have a brand upon the bags, with a statement of their analysis. Special manures are sold by responsible dealers, according to known formulas, which should be studied by the purchaser, that he may know what he is getting and how to use it.

*Cows.*—Want of care during the winter leaves a cow very poor and weak in the spring. Any animal that is out of condition should be well cared for now. A mess of warm-bran slop, with one ounce of ginger stirred in, will be very useful. It is not safe to over feed, especially with stimulating food.

*Calves.*—A calf that is infested with vermin, may be known by its rough coat covered with ticks. The young animals should be freed from these pests at once. A mixture of lard and sulphur rubbed along the spine and on the brisket will be effective; and a dose of a tablespoonful of sulphur and molasses, once a day for a week, will help greatly to drive away lice and prevent disease.

*"Black-leg" in Calves* is frequent just now. It mainly affects the best kept animals. To prevent it, give the sulphur and molasses, and feed no meal. To reduce the condition gradually is an effective preventive. Medicines come too late in this disease, which is almost surely fatal at this season.

*Sheep.*—A few one-ounce doses of a mixture of equal parts of sulphur and cream of tartar will relieve the irritation of the skin common in the early spring, and the loss of much wool by rubbing. Ewes should have dry and clean pens and yards. Abundant litter is no remedy for a wet floor; a dry board is better than a foot of damp straw for a bed.

*Lambs*—Early lambs may be pushed forward by giving them a little fresh cow's milk. They will soon learn to drink this from a pan. The milk should be given warm from a fresh cow, a quarter of a pint to a meal. Do not overfeed any young animal; that retards, instead of assisting growth.

*Swine*—Separate breeding sows from other pigs, and provide them with a warm dry pen, bedded with leaves or cut straw, and furnished with a rail fastened 8 inches from the floor and from the wall to prevent the young pigs from being crushed. It is well to give the sow half a pint of raw linseed-oil a few days before farrowing, and immediately after; this may prevent her from destroying the pigs.

*Spring Work.*—The first work is to replace fences laid by the winter storms. There is nothing gained by plowing too early. The soil should be dry before a furrow is turned. Manure may be drawn out; stones can be gathered from frozen ground when the warmth of the sun has loosened them.

*Poultry.*—Unless great cleanliness is observed, the poultry-houses will become offensive and unwholesome in the damp and warmer weather. Clean often, and sprinkle with plaster and coal ashes, or dig up the earthern floor and freshen it. If lice or fleas abound, apply grease or kerosene oil to the perches: it will spread from these to the fowls. Provide warm, sheltered nesting places for the early setting hens, and a glass covered coop for the chicks. Feed young chicks little, but often.

*Tools.*—Every implement needs overhauling, and many will require repairing. This is the last opportunity of getting things "to-rights" before they will be needed. Sharpen and polish up the tools, clean the machines and oil them thoroughly; look

well for missing bolts; change round for square headed bolts, and put everything in working order.

*Handy things to have:* A box of copper rivets and burs, a coil of stout copper wire, a few dozen mixed screws, an assortment of carriage bolts, an awl and a few wax ends, a bottle of harness dressing, a pound or two of assorted wrought nails, a few loose links for broken chains, half a dozen brass knobs for cows' horns, a small anvil, a box of axle grease (a mixture of black lead and palm oil is the best), a quart can of sperm oil for machines, 5 gallons of crude petroleum, a small supply of simple medicines and a medicine horn,—all these, and a closet to keep them in, will be found valuable in the saving of time, money, and irritation, when an occasion of pressing need comes during the busy season.

## Notes for the Orchard and Garden.

If asked to suggest a motto to be kept in mind by every cultivator the present month, it would be "Make haste Slowly." There is the danger, however, that many might observe the "slowly," and forget that it was coupled with "make haste." March is practically, throughout the Northern and Middle States, the last month of winter, and in it there can be done but little other than winter work. No matter when spring opens to our readers, whether it be in February or May, there will be a temptation to begin to work the soil too early. The days of waiting for the soil to get in proper condition are by no means wasted days; they allow a little longer for thorough preparation for work. The only way in which we can abridge the time required for the soil to get ready is by draining, and at no time can we better judge where drains are needed than the present. Occasionally a correspondent suggests that our Notes about work do not suit his locality. Of course we can not make Notes that shall at once suit Canada and New Zealand, and we expect our readers to exercise judgment in applying them. We endeavor to have them well in advance of the season for the great majority of our readers. In our directions for planting and sowing, two periods are mentioned, and as these occur everywhere except in very warm countries, our Notes have a wide application. The first period is "as soon as the ground can be worked." This means early spring, just so soon as the water has drained off and dried away sufficiently to allow the soil to crumble and not work pasty before the plow or under the spade. The second period is usually expressed by "when the soil is well warmed"—we some times say "at corn planting time," which means the same thing. In every locality experience has taught farmers that, take the average of seasons, there is a date at which it is safe for them to plant their corn; this date will vary in the same county, but it is well fixed for each neighborhood, and is the safest guide for sowing seeds of tender plants, or for setting out those plants that have been started under glass.... We have letters asking where to purchase different articles, more numerous than usual. We can only answer these in case of specialties, things to be had in but one place. If the advertisement of a nurseryman, a florist, a seedsman, or a dealer in implements, appears in our advertising columns, it is an indication that we would order of him, did we require what he has for sale. Those who make such inquiries should bear in mind that each dealer keeps all the ordinary articles in his line—each nurseryman, for example, has all of the fruit and ornamental trees generally kept by others, and so with seedsmen and others. In the case of novelties and specialties, these are set forth in the advertisements.... We repeat our advice to *order early*, no matter what kind of stock it may be. It insures getting what is ordered before the stock runs low, and being better served in every way. Order and receive seeds, trees, plants, etc., as early as may be, but in sowing or planting them "Make haste Slowly."

### Orchard and Nursery.

It has been more than once stated, that so far as these Notes apply to the nursery, it is not to the commercial nursery, but to the farmer's or orchardist's nursery, where trees are raised for the home use, or to supply the neighbors. See January last.

*Tree Seeds* should be sown as early as the ground can be worked, as it is desirable to get all possible growth before the drouth of summer comes on.

*Peach Seeds* that have been kept in boxes of earth, or mixed with earth in heaps, should be planted in nursery rows, 3 or 4 feet apart. The stones are to be separated from the soil by means of a coarse sieve or riddle, and only those that have cracked the shells, are planted about 3 inches apart in the rows, and covered 2 or 3 inches deep. If the halves of the shell fall away, all the better; the *seed* is to be planted the same. Crack the stones not loosened by a light blow upon the edge.

*Budded Stocks.*—Those nursery trees that were budded last summer, will need attention when the buds begin to swell, and it is known that the inserted buds have "taken." All *above* the bud is to be removed, that this bud may have the whole nourishment supplied by the root. Remove the stock with one cut of a sharp knife, leaving about half an inch above the bud.....Most of the

*Spring Work in the Orchard* was noted last month. All pruning, and renovating old trees, may be done at a time when other work is not possible.

*Grafting* is one of those operations requiring to be described so minutely, that we cannot give the details every season. Those who propose to graft, and have not Barry's "Fruit Garden," or other full treatise, may find sufficient for their purpose in these Notes for April 1877—which may be had at this office for 15 cents.

*Do not Graft too Early.*—Those who go about the country to do grafting, wish to make their season as long as possible, and begin to set grafts in February. It should not be done until the buds on the tree to be grafted begin to swell, and show that vegetation is active. Make preparations and

*Secure Cions* if it has not been done. Cions when inserted, should always be dormant, and if not already cut, do it at once before the buds wake up.

*Planting Trees* is a job that should not be hurried. It is not fair treatment of a tree to put it into a hole with clods of wet, half frozen earth around its roots. If trees are received before the ground is ready,

*Heel them in* and let them wait. Select a dry place where the soil is light, open a trench, and lay in the trees in a slanting position—at an angle of 45°, one after another, carefully covering the roots and lower part of the stem of each with soil. See that each tree is properly labeled, or if there are a number of a kind, place a stake to mark them in such a manner that there will be no doubt about their names when they are taken out. Care now, will save much trouble in future. When properly heeled in the trees are safe for a month or more.

*Late Frosts* are often destructive, especially to peach trees at the South. We advise those who fear frosts on the well advanced buds or blossoms to try the method found effective in the vineyards on the Rhine—*i. e.*, to envelope the trees in

*A Cloud of Smoke.*—Every one has observed that frost is rarely deposited in a cloudy night; in fact, whatever prevents radiation, and the cooling of the tree below a certain point prevents frost. A thin paper or fabric will protect very tender plants, and even a cloud of smoke will do the same. In the vineyards referred to, when frost is feared, fires are built and then damp straw or other litter—whatever will make a dense smudge—is thrown upon them. As frost rarely occurs except on still nights, the smoke will not blow away. Moreover, it is found that the mischief is usually done within an hour or two of sunrise, and that it is not necessary to start the fires until then. This method so effective in vineyards should be equally so in peach orchards, and we hope it will have a fair trial this season.

### The Fruit Garden.—Small Fruits.

Read the Notes of the past two months, which give some useful suggestions to beginners. Plant just so soon as the ground is in condition—but not before, as some of the plants start very early. If a new garden is to be made, select a warm well drained soil, and enrich it thoroughly; it is desirable to have it near the house, not only for the convenience of the family, but as a security against trespassers. Our advice in this, as in other departments, is: make the main planting of well established varieties, and try as many of the new kinds offered by dealers as can be afforded.

*Blackberries.*—Plant not nearer than 6 feet. The "Kittatinny" best for general culture. "Snyder" is of good promise.

*Currants.*—Set 4 or 5 feet apart. For varieties, "Versailles" and "White Grape."

*Gooseberries.*—Same as currants. "Downing," "Smith's Improved."

*Grapes.*—The distance apart will depend upon the method of training; if on a regular trellis 8 feet will answer for most varieties. But vines can be set anywhere and everywhere; against fences, sheds, the barn, the house; wherever there is room in the ground for the roots, and space to train them, put vines. If but one vine, plant "Concord." "Delaware," "Creveling," "Wilder," "Barry," and "Eumelan," are all good, and generally succeed. New and excellent kinds are offered by dealers.

*Pears.*—Dwarf trees may be grown in the garden and afford a fair amount of choice fruit, while their cultivation will afford much pleasure; but for fruit in quantities plant standards in the orchard. Set dwarfs 8 or 10 feet apart. The variety is bewildering. For one dwarf tree, the "Duchesse d'Angouleme."

*Raspberries.*—Set 4 feet apart. We are at loss to recommend any *one* red raspberry; probably the Brandywine succeeds over a wider range than any other. There are a number of great promise, including the "Cuthbert." See page 101. Of Black Caps, the "Mammoth Cluster."

*Strawberries.*—Set the plants one foot apart with two feet between the rows, for garden; for field culture put the rows 3 feet apart. The best *one* berry for family use that we know of is "Charles Downing." Newer sorts are numerous, and some of great merit, as will be seen by the catalogues.

### Kitchen and Market Garden.

To a large share of our more northern readers, the Notes of last month are timely, and the preparatory matters there indicated should receive attention.

*Cold Frame Plants, i. e.*, those that were wintered in frames, should go out as early as the soil can be worked. Cabbages, Cauliflowers and Lettuce, are the plants thus treated. These should be well hardened by opening the frames every day when it does not freeze; gardeners near New York City take off the sashes altogether early this month.

*Early Cabbages and Cauliflowers.*—The earliest crop is from the plants thus treated. The ground should be heavily manured—75 tons of stable manure to the acre is not unusual, or part manure, and enough guano to make the whole equal to the above heavy manuring. The ground is marked out in rows 24 to 30 inches apart, and the plants set every 16 inches.

*Lettuce from the Frames* is set a foot apart in rows between the Cabbages and Cauliflowers.

*Sowing in Hot-beds, Frames, or Window Boxes*, should be done about 6 weeks before plants can be set out. See last month. Cabbages, Cauliflowers, Lettuce and Tomatoes are first sown, Egg Plants and Peppers a month later. Sow in boxes as directed last month, and if the best plants are desired, transplant as soon as they have made two leaves besides the seed-leaves, into other boxes of good soil, at least an inch apart—two inches is better.

*Hardening Plants.*—As the time approaches for setting the plants in the open ground, they should be exposed freely, at first during the day, and later when the weather will allow, by night also. In hot-beds and frames, this may be done by removing the sashes. In window boxes, set them out doors.

*Sowing Seeds.*—Those which may be sown in the open ground as soon as that can be made ready, are of northern origin, and will grow when the temperature is from 45°—upwards. These are designated as

*Hardy Vegetables.*—The principal are, Beet Cabbage, Carrot, Cress, Cauliflower, Celery, Endive, Lettuce, Parsley, Parsnip, Onions, Peas, Radish, Turnip and Spinach.

*Tender Vegetables*, not to be sown until the soil is

well warmed, or at corn planting time, are: Beans —Snap and Pole, Cucumber, Corn, Melons, Okra, Pumpkin, Squash, Tomato, Watermelon.

*Asparagus.*—Rake off the litter from the beds and carefully fork in the fine manure.

*Rhubarb.*—Make new beds by dividing the old roots so that each portion has a bud. Set 3 or 4 ft. apart each way, manuring the hills very heavily.

*Early Sowing* in drills 12 to 15 inches apart should be made of Beet, Carrot, Leek, Onion, Parsnip, Spinach, Radish and Turnip Radish seeds may be sown with Beets, as they will mature and come off before they are in the way. Early Potatoes should be planted and early Peas sown.

*What Kinds to Sow.*—We have usually given, this month, our choice of varieties in these Notes; we now give in another place a full account of Mr. Henderson's trials of new and old kinds which will be of great aid in making selections of varieties.

## Flower Garden and Lawn.

*Old Lawns* will need a top-dressing and a sprinkling of seed in places where the grass is poor. If manure is applied, let it be so thoroughly decomposed that no weed-seeds remain alive. Ashes, guano, nitrate of soda and fine bone, are all good manures for lawns and bring in no weeds.

*New Lawns* should be made as early as the ground is in good condition, to have the grass well established before hot weather. For light soils, Red top, for stony ones, Blue-grass, with perhaps a little White Clover, is in our experience preferable to mixed seeds. Four to six bushels to the acre are needed to make a good velvety turf.

*Turfing* is best for small plots, and should be laid on large lawns along the edges of roads and beds.

*Ornamental Trees.*—Plant when the soil is in condition; Evergreens may wait a month or more. Where old trees interfere, branches may be removed, but they never should be pruned in such a manner as to change their natural shape.

*Shrubs* may be transplanted, and pruned, taking care to preserve their natural habit.

*Miscellaneous.*—Repair roads and paths....Uncover beds of bulbs....Lift and divide large clumps of perennials....Sow seeds of hardy flowers.

## Greenhouse and Window Plants.

But little is to be added to the Notes of last month....Insects will need more care....Air may now be given more freely....Fuchsias may be started into growth....Where there is a demand for bedding plants, propagation should go on rapidly. ....Seeds of flowers for the borders should be sown.

## What to Plant in Gardens.

BY PETER HENDERSON, JERSEY CITY HIGHTS, N. J.

### Vegetables New and Old—Trials of 1878.

[Heretofore we have given nearly every year, as the season for gardening opens, a list of such vegetables as our own experience has shown to be most desirable, including our opinion of the novelties tested during the preceding year. There are many who are indifferent to such matters, and thinking that a "beet is a beet," buy whatever seed is most readily obtainable. By a careful selection of seeds not only is greater excellence secured, but in most cases larger crops, both matters of importance, whether the produce is to be consumed or marketed. This year we give the results obtained by Mr. Peter Henderson in his extensive trials. For varieties of small fruits, see the several notes above.—EDS.]

As usual, we last season subjected the seeds of every variety of vegetable that we could procure to a comparative test of their earliness and other qualities. These varieties, procured from all quarters, numbered over 600 kinds, many of them purporting to be new and improved varieties, though comparatively few proved to be improvements on the standard sorts. The point of real value to your readers is to be told what are the best of their kinds, whether new or old, and we give below those that are, in our judgment, the most valuable. The several varieties of each class were sown or planted at the same time under exactly the same conditions and the results daily noted. The results thus obtained serve to indicate very fairly the value of the different varieties, at least for this latitude. The varieties are named in the order of their merit.

*Asparagus*—"Colossal" still holds the front rank; indeed but little else is now grown. Mr. A. Smalley, Bound Brook, N. J., claims to have originated a new variety, which he names "Defiance." I examined it last season, with Mr. Van Sicklen, of Jamaica, L. I., one of the best authorities on asparagus. It was late, however, and we were unable to determine whether or not it was superior to the "Colossal." Mr. Smalley has kindly sent me a quantity of the roots, and I hope to report on it next season.

*Beet*—"Egyptian Turnip," the earliest of all the Round Beets, deep in color and finely formed. "Dewings" is second in earliness, while the "Long Smooth Red" is best for winter.

*Beet, Sugar,* and *Mangel-Wurzel*—For stock, "Norbitan Giant," long red, "Kinver Yellow Globe," "Lane's Imperial Sugar Beet."

*Beans, Pole*—Large Lima best for general use. As "string" beans grown on poles, the "German Wax" and "Giant Wax" are excellent.

*Beans, Bush*—"Early Mohawk" and "Early Valentine" we find rather the earliest, though the new "Golden Wax" is but little behind it and is a decided acquisition, being a most profuse bearer and very tender; it is stringless; "Black" and "White Wax" are also stringless, excellent bearers, and of fine flavor; "Refugee" is the best late variety and is the kind mostly used for pickling. [In our opinion the "Wax" beans should rank as a distinct class, as they differ as much in flavor as they do in other characters from the ordinary beans. It is allowed to differ in matters of taste; we regard the wax-beans so inferior to the others that we have ceased to cultivate them.—EDS.]

*Cabbage.*—For our trial test we sow all cabbages, cauliflowers, and lettuce in hot-bed about March 1, and set the plants in open ground early in April. We receive at least half a dozen new sorts of cabbages every season, but still find nothing so satisfactory in this section as the "Jersey Wakefield," which has now been cultivated in the vicinity of New York for nearly forty years, and is still the variety exclusively grown as first early, either for market or private use. Next is "Early Summer," 10 days later, but fully one-third heavier. Though the "Wakefield" is still the favorite in the vicinity of New York; the "Early Summer," is rapidly supplanting it in the South and West. "Early Flat Dutch," though a little larger, is not so profitable, as its larger outer leaves require it to be planted farther apart; for example: we plant 12,000 of "Wakefield" or "Early Summer" on an acre, while 9,000 only of the "Early Flat Dutch," "Fottler," "Brunswick," or others of the large-leaved kinds could be profitably planted on an acre. For late cabbages we sow the seeds in May, and still prefer "Premium Flat Dutch," as the best. For pickling, the "Blood-red Erfurt" is best.

*Savoy Cabbages* are now more used than formerly. Why they are not almost exclusively grown is a wonder to all who know their superiority to the smooth-leaved cabbages. There are but few varieties, and they are usually grown as a fall or winter crop, though they can be grown equally well as an early or summer crop. The "American Drumhead Savoy" we find best.

*Cauliflower.*—Last season we requested over one hundred market gardeners to report how the new variety, the "Snow-ball" had done with them; three out of four of the replies were favorable, which is an excellent endorsement of a crop so uncertain as the cauliflower. Our own experience was even more satisfactory than the year before, proving to us beyond all question that this new sort is by far the best for the early crop. Two of my neighbors who are market gardeners, John Hudson and William Frost, grew it largely for the New York market; it averaged fifteen cents per head, or about $1,500 per acre. It must be borne in mind that the season has much to do with the cauliflower crop, and it is too much to expect such success every year, with this or any other variety. Thirty varieties of cauliflower were tried, but this, for early, and the "Half-Early Paris" and "Algiers" for late, were decidedly the best; fully three-fourths of the thirty kinds tried were entirely worthless for our climate.

*Celery.*—In celery we have several improvements. The "Golden Dwarf," a selection from our "Half Dwarf," has the same stout, short growth as that variety, but with fuller hearts, and a decided yellow tinge when blanched. The past season it has been grown almost exclusively here, and has brought about 10 per cent more than any other kind in our markets. Another new kind, "London Red," has the solid and dwarf habit of the "Golden Dwarf," but with a bright crimson tint, making it not only beautiful for the table, but, like all red celeries, the flavor excelling all the white varieties.

*Carrot.*—For forcing under glass, "Scarlet Horn" is the best. For early market, sown outside, "Half Long Red" or "Stump-rooted" is the earliest; for the general crop, "Improved Long Orange." "Danvers," a scarlet intermediate, is a new and very promising kind, half long, fine color and flavor, giving great weight of crop. For field culture, the "Yellow" and "White Belgian" are generally used, as they give nearly double the weight of the "Long Orange," but they are far less nutritious than that, which is really the most profitable, particularly when grown for horses.

*Sweet Corn.*—"Crosby's Early" is the sweetest early; "Narragansett" and "Minnesota" are rather earlier but not so good. The new "Egyptian" sent out last season, is a large variety, and to most tastes excels all others in flavor. It is very prolific, but like all other large kinds is not early. The "Egyptian" is likely, to a great extent, to take the place of "Stowell's Evergreen," heretofore the standard kind for late main crop.

*Cucumber.*—"Early White Spine" and "Extra Long White Spine," prove best for general use; "Green Prolific" is the best pickling sort; "Long Green," is a very handsome sort of excellent flavor.

*Egg Plant.*—"New York Improved," for earliest and general crop; "Black Pekin" and "Long White" are the best in quality.

*Endive.*—"Green Curled," best for market. "Moss Curled" is distinct and beautiful.

*Leek.*—"American Flag," best for general crop; "Carenton," a new sort, of great weight.

*Lettuce.*—We have given great attention to this important crop and tested over 50 kinds. The best *plain-leaved* for early out-door crop, is, we think, "All the Year Round"; the best curled-leaved, "Curled Simpson," or "Silesia," which are nearly alike. Of the new kinds of merit we found the "Green-Fringed" useful as well as ornamental. The "Black Seeded Simpson," of the new sorts, forms an immense head, of a rich, light-yellow shade, curled like "Simpson," and stands the hot sun equal to any we have ever tried. For forcing in frames or greenhouses, the "Boston Market" is almost exclusively used now in this vicinity; it resembles the old "Tennis Ball," forming a hard head, but it is larger and better in all respects.

*Melon, Nutmeg.* — The "Hackensack," is the favorite for the market of New York. It is round, large-sized, green-fleshed, having the rind well netted, an unfailing indication of good flavor. "Jenny Lind," a smaller kind, is excellent. "Cassaba," a large, long, yellow-fleshed melon, a most prolific bearer and of first quality.

*Melon, Water.*—"Phinney's Early," is of medium size, very prolific and excellent. "Gipsey," is the large striped kind grown so largely at the South for our northern markets.

*Okra.*—Improved "Dwarf Green."

*Onion.*—Of Reds, we name "Red Globe," and "Red Wethersfield;" of Whites, "White Globe," and "White Portugal," and of Yellows, the true "Yellow Danvers." The Italian varieties are distinct and well adapted for the South. The varieties of these are: "New Queen," the earliest. "Giant Roeca," "White" and "Red Italian," and "Tripoli."

*Parsley.*—"Moss Curled," and the comparatively new "Fern-Leaved" are the best and most desirable.

*Parsnip.*—"Early Short Round" for early, and "Long Smooth" for general crop.

*Peas.*—Our trial of these included nearly fifty samples. "Improved Dan'l. O'Rourke," proved caliest and best for general crop. Very close on this, however, came "First Crop," and "Philadelphia Extra Early." "Alpha," three or four day's later,is of superior quality to the three above named. [In our experience, the "Alpha" is so much better that we prefer to wait the few days and take it for the earliest—but with market gardeners, a few days are important.—EDS.] For *second* early, "Laxton's Fill Basket," "Little Gem," and "Advancer;" while for *late*, "Champion of England," "British Queen," and "Veitches' Perfection," were best. "Superlative" makes the largest pod. Of edible podded peas, "Tall Sugar" is the best.

*Peppers or Capsicums.*—"Large Bell" and "Sweet Spanish" are the best of the "sweet peppers," while the "Long Red Cayenne" is the best of its kind. "Cranberry" is a new variety, resembling a cranberry in shape; is excellent for pickling.

*Potato.*—"St. Patrick" (see page 102), "Beauty of Hebron," resembling "Early Rose," hardly as early, but more productive, and of excellent quality. "Snowflake" in quality still holds its superiority, but is inferior in productiveness to some others. "Extra Early Vermont," akin to "Early Rose," is the earlier, and in all respects desirable.

*Radish.*—"Long Scarlet," "Scarlet Turnip," and "French Breakfast" are all about alike in earliness, when sown outdoors, but for forcing, a new variety, "Round Dark Red" is a great improvement in its handsome shape and unusually deep color, while its smallness of top enables it to be grown nearly twice as thick as the ordinary "Round Scarlet." A most valuable acquisition to all who force radishes, and even in out-door culture, the same quality of "short tops" will be valuable. The "White Tipped Scarlet Turnip" is also a very pretty variety, and equal in quality to any of those named. In summer radishes we have also a new sort, the "Olive-shaped Golden-Yellow." This new color in the radish not only makes a desirable feature in a collection of vegetables, but its quality is likewise good. For winter use, "Black Spanish" and "Rose-colored Chinese Winter" are the best.

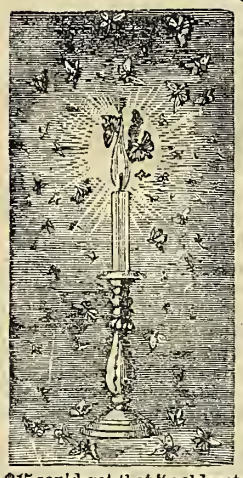
*Tomatoes* were sown the first week in March, and after being twice transplanted, were set out about the middle of May, each plant being carefully pruned and staked, so as to allow of its best development. Tomatoes are always with us the most difficult vegetable to decide upon, many of the varieties claiming to be different being identical. Among forty kinds, tried under as many different names, only a dozen sorts could be called distinct. Of these, among the recent sorts, we decided that "Acme" stood highest in point of earliness, perfection in shape, richness of color, and excellence of quality. "Reed's Island Beauty," new, an immensely large clustered variety, possessing all the good qualities of the older varieties. "Conqueror," "Early Smooth Red," and "Canada Victor" still hold their own. While for canning-purposes "Paragon," "Hathaway's Excelsior," and "Arlington" are best suited. The "Trophy" is yet a favorite for family use, though less grown for market than the smaller but better shaped and earlier sorts. Our experiments confirm what we said last year, that no advance is being made in earliness in the tomato, and has not been, we think, in twenty years. Nor do we think there is likely to be any marked improvement in earliness, unless at the expense of quality.

*Spinach.*—The new "Savoy-leaved" last season so completely superseded the other sorts that they are no longer grown by market-gardeners when the seed of this can be obtained. It winters as well as the old "Round" and "Prickly," gives twice the weight of crop, and is of better quality.

*Squash.*—"White Bush" and "Summer Crookneck" are the favorite summer kinds. "Boston Marrow" and "Hubbard" are still the best for winter. The "Yokohama" is not quite so fine-flavored as the "Hubbard," but keeps better.

*Turnip.*—For earliest, nothing else yet equals the "Red-top" and "White-top Strap-Leaf," but this season we had a new sort, the "White Egg," which, while nearly equalling these in earliness, grows to a larger size, presenting a most novel and beautiful appearance, being oval, or egg-shaped, and clear white; skin smooth; flesh fine-grained and sweet, and a good keeper. For second early, or winter, "Yellow Globe" and "Golden Ball" are the best. In rutabagas the "American Improved" and "White French" are both grown for general crop, principally the former. [Our preference is for "White French" over all others for table use, but it is not handsome enough for market.—EDS.]

## Sundry Humbugs.



It would be an unwelcome task to expose humbugs, did we not feel that we were doing some good. While but little progress is perceptible, taking one month with another, we can, by looking back a full year, see that a number of pernicious swindles have ceased to exist. Where now are Clark & Co., those persuasive "adjusters of claims," who approached so many thousands with the conundrum, "Is this your signature?"—Where are Russell & Co. with their announcements "A Decision at Last,"—which "decision" amounted to the fact that any one green enough to send them $15 could get that "gold watch and chain *valued* at $150." These and many others that were so flourishing at this time last year, have "gone where the wood-bine twineth."—We do not flatter ourselves that there will be any fewer swindling schemes, but we are sure of the dead ones, and the fact that the most flourishing can be killed, encourages us to go for the living.

JONES STILL SEEKS HIS COUSIN.

Jones must have found some of his cousin, as he seems to be slacking up in his hunt. He notifies his correspondents, and we give him the benefit of this announcement, that H. F. Burtnett is to hereafter aid him in his swindling schemes, instead of McCall, as formerly....A friend in Vermont writes that the schemes of

THE LOUISIANA STATE LOTTERY

are being circulated freely in his vicinity. That jig will soon be up. The concern, which was chartered by the Legislature of Louisiana, has had its charter repealed. Good for the Legislature!....A subscriber suggests a plan which will make signatures worthless to those who get hold of and use them after the manner of Clark & Co.; it is to write the name of the person or firm addressed, on the other side of the paper, directly opposite to the signature, so that when the signature is cut out, it will on the other side show where it came from

SWINDLES UPON FARMERS

are by no means confined to those where implements are concerned. A very successful one among the farmers in Pennsylvania has been worked out with goods for men's clothing. A man with stylish wagon drives up. He is selling for so and so—as they must realize as quickly as possible; goods in patterns for suits, great coats, or whatever may be, are offered. The goods not to be paid for until made up by a tailor, and found satisfactory; samples are shown, sales made by sample, and the goods delivered. One of our correspondents was solicited to buy, but the seller would not dispose of the goods shown, as that was a sample. He soon after visited a neighbor, who had bought *by sample*, and found on opening his parcel, that he had *cotton* instead of *woollen* goods. The neighbor was of course indignant, and told our correspondent that he should not pay for the article. Our correspondent questioned him, and learned that he had signed merely a receipt for the cloth. At the end of 30 days the purchaser received a note from the bank where he kept an account, stating that they had discounted his note for $21, and charged it to his account. The receipt for the goods was a *note*. Our friend asks us to warn the farmers of Pennsylvania against Hugh Anderson, the name in whose favor the note was given, and repeat our injunction to farmers,

"TO SIGN NOTHING, NOTHING, NOTHING."

Unlike many others who write about such matters, our friend says we may use his name if it will do any good.

IMPROPER BOOKS AND PICTURES

are matters that we can not expose in full without advertising them. The circulars of the rascals who offer them leave no doubt as to the character of the articles, and show that every parent should examine all printed matter sent through the mail to his children. We have one bit of advice to give to a concern in Hyde Park, Mass.,—stop.—If you don't, and that pretty quick, we shall find means to stop you....An agent of Adams Express Co. in R. I., writes a very sensible letter, showing how young men are induced to buy trashy things in hope of selling them at a profit. He also gives his method of treating

THOSE WHO WRITE THREATENING LETTERS,

which can not be too highly commended. He says:

"Not long ago a young man near me received a box of brass jewelry from a trash store on Broadway, with a C. O. D. of $15. I refused to collect the bill, showed the boy the sham, and told him to keep his money and 'let them sweat.' I returned the box, and in a few days I received a threatening letter from the New York firm, to which I replied as follows:

*Gentlemen:* Yours of the 12th inst. is at hand, and in reply I would say, that you can find me at my office from 6 A. M. to 8 P. M., Sundays excepted. I am 6 feet in my stockings, my fore-paw fills a quart measure, and I snap the health-lift up to 750. Respectfully O. P. N.

N. B.—They hav'nt called."

BROTHER MARY FOSTER STILL LIVES.

One of the most unblushing, persistent, and, we are sorry to say successful swindlers of the day is Mrs. (*Mr.*) Mary L. Foster, of Smithville, Tenn. We showed, several months ago, the method of this swindle, which at that time had been so successful that Foster had a good bank account, obtained by operating upon the sympathies of benevolent people all over the Northern States. As the method may be new to many, we give it:

At first Letters, and after learning the art of condensation, Postal Cards, were used to save postage—were addressed to a great number of names, and when names failed, they were addressed "to the Pastor of the Methodist Church in ——." Many persons had their sympathies aroused by the pitiful tale of want and woe, so skillfully told, and responded, in the aggregate, to tens of thousands of dollars. And when the mine of a kind heart was found, it has been worked again and again. To those who return words of condemnation, a complaining letter of prejudice, abuse, etc., etc., is related, with all the skill of a "Philadelphia Lawyer," and more help besought in a letter almost glistening with tears and pathetic with wounded feelings. We are so accustomed to this thing, that we have to merely make a little application to the missives, and out comes, between the lines, "humbug," "fraud," "swindle."

MEDICAL MATTERS

are more numerous this month than usual, though by no means all new. Indeed some of them are so old that they are likely to be new to the present generation of readers...."Fits," from whatever cause, are distressing to the friends of the afflicted, and they naturally catch at whatever promises relief. We are every now and then asked about one Root, who calls himself a "Doctor," and professes to cure "fits." There is no regular physician in New York City of the name of this "Doctor." Any one who professes to cure fits, or any thing else without investigating the cause—for fits are not all alike—and without knowing the present condition of the patient, merely by sending his stuff to be taken—hit or miss—is a quack to be avoided—no matter what his pretensions,

THE RETIRED MISSIONARY DODGE

is still played. One of the latest is Charles P. Marshall, of Buffalo, N. Y. It is not fair that these new comers should receive the prominence due that veteran swindler,

THE REV. JOSEPH T. INMAN.

It is now some 15 years since we showed up this "Reverend" fraud, and he still lives. He has outlasted scores of other quacks, but none more pernicious than himself. As the case of the "Reverend" Joe is typical of the whole retired missionary crew, we give his method of operating. Joseph is very eloquent on

"THE ERRORS OF YOUTH,"

"early indiscretion," "loss of manhood," and the like. We have shown up this "missionary" fraud again and again, and with special reference to this Inman, yet we find at this late day, in a journal edited by a clergyman, who would not knowingly help a swindle of any kind, an advertisement, displayed in leaded type, in which this same Inman proposes to send this "Recipe" of course *free* to those answering the advertisement. The "recipe," accompanied by four pages of fiddle-faddle, setting forth all about it, is as follows:

Extract of Corrassa Apimis . .....Eight Drachms.
Extract of Selarmo Umbelifera.....Four Drachms.
Powdered Alkermes Latifolia.....Three Drachms.
Extract of Carsadoe Herbalis ..... .Six Drachms.

Then follow directions for fixing and mixing and taking the stuff, which he calls the "Corrassa Compound."—The Rev. Joe tells the story of the errors of *his* youth, which we can readily believe, considering how he goes on now that he is no longer young; tells how he went as a missionary to South America (poor salvages!); how he discovered the "Corrassa Compound;" how bad he was before he took it, how he got well, and how he was "con-

vinced that it was his sacred duty to make known the discovery of this remedy for the benefit of suffering humanity."—They all are taken with this sense of "duty." How this "duty" appears to Joe, can be read in his directions

"HOW TO OBTAIN THE CORRASSA COMPOUND."

Joe—the Reverend—says: "As the drug stores can not be relied upon to procure new remedies of pure quality, I can forward the Corrassa Compound," etc.—and that accounts for the milk in Joe's cocoanut. Send only $3.50 to Joe—and you are all right. Try to get it at the drug stores, and you are all wrong. "Sacred duty" is a big thing at $3.50 a time.

Now you Mister Reverend Joseph T. Inman, you know that this "recipe" of yours is all stuff and nonsense. You know that those names, "*Corrassa Apimis*," and all the rest, have their origin only in what we will, as a convenient word, call your brain, and you know as well as we do, that every so-called "new remedy" in your "recipe" is like yourself—a miserable fraud—a humbug.

THE FACTS ARE,

that the things named in this "Recipe" are not known in medicine, in pharmacy, or in botany; they are bunglingly made up, have not the semblance of probability, and are so far unlike the real names of real things that they advertise your ignorance and stupidity. The youngest clerk in a drug store could have suggested "*Hydrofoetidigumbo*," or "*Amanagooselick*," as more like real names than the utterly stupid ones you have chosen. Joe, you have been around long enough—we are tired of you—subside....A curious thing connected with Joe's circular is that a Frenchman in Canada—in his singleness of heart, should find it "disgraceful that a 'Reverend' should be in such business."—"Reverend"—bless you. that title is no more true than the names to his drugs. Joe is no reverend, or he would not lie so.—Our French correspondent, who is perfectly familiar with Paris, referring to one of the "Rev." Joe's certificates, of a Doct. Thonet, in Paris, says that there is no such person there. —Of course not.

MURDER AND BLASPHEMY!

That is not a pleasing heading, but it just expresses the character of a circular sent out by one villain who calls himself "H. W. Hogan, M. D." He lives in Kentucky, but we do not advertise him by giving his address. In short, he "has made the discovery of a remedy, and established its efficacy (the rascal!) that will obviate effectually and certainly the danger of child bearing," and more that we do not care to print. The circular is an out and out plea for child murder. Those who wish to engage in this business are required to sign an obligation "to keep strictly and profoundly secret all of the advice given us," etc.—in which the name of the Almighty is used in a manner that seems to us blasphemous. When he asks people to promise "God being our witness," to keep secret his methods of child murder, we think it quite time that this Hogan was looked after.

## Compound Microscopes.

**A Most Valuable Instrument at a Very Low Price.**—After a whole year's earnest effort, we have finally succeeded in securing a **Compound Microscope,** that will surely give *great satisfaction* to all who can use any such instrument. It is a wonderful combination of the important elements of an instrument costing five to ten times the price at which this will be supplied. A *Camera Lucida* attached enables one to throw upon paper a greatly magnified image of objects invisible or nearly so to the unaided eye, and to sketch them accurately. Thus, for example, the foot of a fly or other small insect can be thrown upon paper and be sketched as large as one's hand.—We know of nothing else that would afford such a perpetual source of interest and instruction, to young and old. We can not spare the space to give anything like a full description of it, *but we will send to any one desiring, a descriptive illustrated pamphlet.* It is recommended in the highest terms by such eminent men as Prof. Gray, of Harvard, and others.

Last year we offered a **"Simple Microscope"** to our readers, at a low rate, much less than its actual cost to us, though it was manufactured in large lots (5,000 to 25,000) with newly devised machinery that reduced the work very greatly. It was only offered as a *Simple*, 3-lens Microscope, and it gave great satisfaction to many tens of thousands of people. After thorough testing, it was adopted for classes in Colleges, Seminaries, Academies, etc., and it is largely sold now, at $1.50 retail. (We supply it to our subscribers wanting it *this year* for 50 cents at the office, or 70 cents delivered free anywhere in the United States. To all others than actual subscribers the price is $1.50.)—But a few subscribers were disappointed in it. Some had formed exaggerated and unwarranted expectations; they expected to simply look into it and see monsters. Others, through lack of mechanical skill, and especially *from failure to carefully study and apply the directions*, did not learn *how* to use it, and appreciate its merits, and laid it aside in disgust. This was their fault, and not ours. We can *show* any one that it was and is all that was claimed for it, and *more*; that it is more convenient and effective for good use and service than anything ever before offered for five times the money. We hope all who failed to value it highly, will again get out the chapter of directions that accompanied each instrument, (or send a stamp for a new one if the former one was lost,) and study the working of the instrument until they learn its value. Every one of these Simple Microscopes *ought* to be in frequent use; every one should be affording enjoyment and profit.

*containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of room elsewhere.*

**The German Edition.**—All the principal articles and engravings that appear in the *American Agriculturist* are reproduced in the German edition. Besides these, there is a special department, edited by an eminent German cultivator. Our friends can do us a good service by calling the attention of their German neighbors and friends to the fact that they can have the paper in their own language, and those who employ Germans will find this Journal a most useful and acceptable present.

**Business Reviving in Earnest.**—Marked evidences of this are visible everywhere. Among many other indications are our columns. The advertisements are more numerous than at any time before, in many years. In March and April, the editors usually yield more space to those columns than at other seasons, but our readers will hardly regret this, for in the advertising pages they will find much of interest. This is the time to look out in advance for Spring Seeds, Plants, Implements, etc., etc., and it will pay every one to go carefully through all these pages, and see what is offered, by whom, and at what prices, and forward early orders, or send for circulars, catalogues, etc. Nowhere was there ever brought together a better class of advertisers as a whole. Our rules are more stringent than those of any other journal, in shutting out all deceptive medical and other advertisements, and all persons whom we do not believe to have *both the ability and intention to do just what they promise.*. Our readers can therefore write to our advertisers in confidence of receiving fair treatment. In writing to any of these men, or ordering, or sending for catalogue, circulars, or information, it is well to let them know that you belong to the great, wide-awake Agriculturist family. It will please the advertisers and perhaps stimulate them to extra care in pleasing you.

**Bound Copies** of volume 37, and of every previous volume back to Vol. XVI. (1857), neatly bound, with gilt backs, Index, etc., are supplied at $2 each (or $2.30 if to be sent by mail). See Publishers' Notes, 2d cover page.

**A NEW PREMIUM—And a Pocket Revolver, Cheap.**—So many write us for good, low-priced revolvers, that we have arranged to supply those who want them, thus: 1st—A first-rate steel-barrel and lock, *nickel plated*, 7-shooter **Revolver,** Calibre 22-100. Made at the celebrated Remington Arms Works, weight 7 ounces. It is as good as any made for anything like the money, and good enough for anybody who wants such an implement. We have fired one 100 times, and found it work perfectly. It will be sent free to any part of the United States, post-paid, by mail, to any one sending only 5 subscribers to the *American Agriculturist*, at $1.50 a year, or 10 subscribers at the 4-club rate of $1.25 a year. [Or it will be forwarded free by mail, on receipt of $2.50. It is as good for use as any $5 or $10 revolver of like calibre.] **2d.**—A larger 5-shooter Revolver, nickel-plated, calibre 32-100, weight 11 ounces, will be presented for 7 subscribers, at $1.50 each, or 12 at $1.25 each, delivered free, as above. [Or it will be forwarded free, as above, on receipt of $4.]

**Hardy Herbaceous and Other Hardy Plants.**—The catalogue of Woolson & Co., Passaic, N. J., about twice the size of that of last year, offers a remarkable collection of hardy plants. A special feature is the great number of rare native plants, many of which are now, for the first time, brought within the reach of cultivators. They offer not only the rare species of the Atlantic States, but those from the Rocky Mountains, Oregon, Washington Ter., and California, many of which appear the first time in any catalogue, at home or abroad.

## Good Things Free.

**Our Readers are reminded that the valuable assortment of Useful and Desirable Articles, offered in November, are still available to all of them. A few hours, often as many minutes, will secure as many Dollars worth of just what one wants. During every month of March, for many years, Hundreds of our readers have obtained these valuable articles without expense. We can not spare space to give even the catalogue of these articles, but will be happy to send a list, with full description of each article offered, to any and every one desiring it, who will simply give us his or her address by postal card, and say on it, "Send me Illustrated Premium List." Over 20,000 of our readers have received these premium articles with great satisfaction. Thousands may do the same THIS MONTH.**

**Exportation of Cattle.**—On another page, we congratulate cattle-growers upon their encouraging prospects. Just as we go to press, the cable announces that the English Privy Council, have ordered that all cattle from this country, shall be slaughtered on arrival, before leaving the docks. A few English farmers who fear competition, have carried their point against the thousands to whom cheaper meat would be a great blessing. In view of the fact that there is no cattle disease prevalent in this country—there always are a few scattered cases here and there, but there is no epidemic—it is not probable that this restriction can long continue.

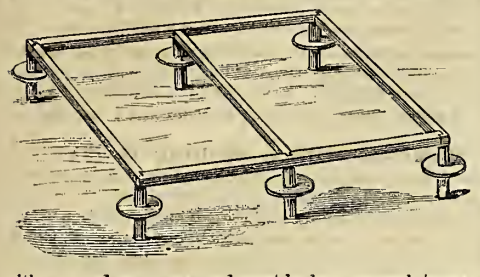
**Prickley Comfrey in Georgia** makes a long season. A correspondent, "A. L. H.," at Athens, writes that his first cutting was March 20, his last Nov. 27.

**Draining of Lands and Houses.**—That draining may be done for two distinct objects, is recognized by Col. Waring, in the title of his work "Draining for Profit and Health." When this appeared several years ago, it at once took its place as the standard work in its specialty, as it met the popular demand, which is for works telling what to do, and how to do it, in the most direct manner and without unnecessary words. A new edition is now ready; this has been completely revised by the author, who has added the new matter necessary to include the improvements that have been made since the first edition was published, and to bring the work quite up to the time. It is not merely a reprint, but a *New Edition*, and the purchaser may be sure that in procuring this work, he has the best and latest instructions, whether his drainage operations are to render his fields more productive, or to place his dwelling in the best sanitary condition—the last named object being quite as important as the other. Published by the Orange Judd Company, who send it post-paid for $1.50.

**"Hog Products."—Immense Exports.**—During the half year ending Feb. 1st, **1879**, there were shipped to foreign countries, from the single port of New York, no less than **359,958,000 pounds** of Pork, Bacon and Lard, to supply which would require some **Two Million** hogs averaging 200 lbs. each. These shipments were in the form of 21,360,000 lbs. of Pork, 232,142,000 lbs. of Bacon, and 106,456,000 lbs. of Lard. The shipments for the same period the previous year, were **281,907,000** lbs., viz., 16,370,000 lbs. of Pork, 167,939,000 lbs. of Bacon, 97,548,000 lbs. of Lard,—being a total **increase** this year of **78,051,000** lbs., made up by an increase of 4,990,000 lbs. of Pork; 64,153,000 lbs. of Bacon; and 8,908,000 lbs. of Lard. The total increase in pounds is, $27/_{10}$ per cent. Increase in Pork, 30¾ per cent; in Bacon, 38 per cent; in Lard about 9 per cent. If we reckon 8 lbs. of corn to produce 1 lb. of pork, the total shipment from this port in the form of hog products for six months, is equivalent to 51,000,000 bushels, which in the form of corn would weigh 2,856,000,000 lbs.

**True's Potato-Planter.**—Several subscribers inquire about True's Potato-Planter. This is an excellent machine, and in our experience has done all that is claimed for it. One grower of our acquaintance says it more than saves its cost on every ten acres upon which it is used. It has stood the test of several years' trial, and its practical usefulness appears to be well established.

**Rat-Proof Corn-Crib.**—"J. A. M.," Humboldt, Neb., favors our readers with a suggestion for a rat-proof corn crib. As shown in the engraving, it consists of a sort of wheel around each post, about two feet from the ground. The wheels may be of wood, sheet-iron, or tin,



either round or square, and must be large enough to prevent a rat reaching the outside edge by jumping from the post, and high enough (at least two feet) to prevent his jumping upon it from the ground. Mr. M. has a crib thus protected which he uses for storing seeds, etc.

**Interfering Horses.**—"G. M. G.," Port Royal, Pa., writes in regard to interfering horses as follows: "The moving foot causes the injury upon the leg supporting the weight of the horse, and the pastern of the injured limb is struck by the moving foot because it is in an unnatural position, being bent inward. To obviate this, have the inside of the foot raised, either by a calk, or by "upsetting" the shoe so that the inside will be from ¼ to ½ of an inch higher than the outside. This will throw the pastern joint outward when the weight of the horse is supported by that limb, from half an inch to an inch, and thus enable the opposite and moving foot to pass without touching a hair." [It is dangerous to throw the pastern joint out of its proper balance by changing the level of the shoe, and if done unadvisedly, it may work serious injury to the horse. This is a point to be guarded against with great care. Horses differ considerably in the form of the foot and joint, and their peculiarities should be studied before applying such a remedy.—ED.]

**Treatment of a Fistula.**—"W. M.," Washington Co., Pa. The chief difficulty in treating a fistula upon the withers is, that the pus being unable to escape remains at the bottom of the opening, causing irritation and preventing healing. The proper treatment, therefore, is to open the fistula very freely with the knife and to apply caustics or corrosives—such as a solution of Nitrate of Silver or Muriatic Acid—to destroy and break up the pipes, or to remove them bodily by cutting. The bottom can then be reached, which should be done with a swab of soft sponge fastened to a whalebone splint. The wound is washed and thoroughly cleaned with a solution of 4 grains of Chloride of Zinc in an ounce of water. A plug of lint dipped in Tincture of Myrrh is then inserted and kept in the opening until it requires washing and cleaning again. By persevering in this way, and by keeping the parts clean and covered with a plaster to exclude air, etc., and dressing it twice daily, the fistula will soon begin to heal from the bottom, and in time will close up entirely to the surface. But on no account should it be permitted to close at the top while the bottom is unhealed.

**Tobacco for Texas.**—"N. P.," Ellis Co., Texas. Tobacco-growers are succeeding very well now with Havana seed. But before you select your variety it would be well to learn in the vicinity what other growers are doing, what they find best, and not change blindly.

**"A Pleasing Lamp Shade"** was described on page 24, in Jan. last. "E. C.," West Berne, N. Y., likes the shade, but does not know how to fasten it to the lamp. At all the stores—at least in large towns—where lamps and gas-fittings are sold, are to be found shades of various kinds, from those of plain paper, up to those elaboratcly ornamented; they are to be supported upon the lamp or gas burner, by means of simple and very cheap wire frames. These have small rings or clamps, to fit gas fixtures, or larger ones to fit the burners of lamps, and are sold without as well as with the shades. The engraving shows one of these frames. "E. C.," or any one else, having the idea, can easily make from wire a frame or support that will answer the purpose.

**Books for a Farmer and Wheat-Grower.**—"E. C." If wheat-growing *alone* is followed, books will be less necessary, because the first thing taught by books is, that continuous wheat growing is ruinous farming. Allen's "*New* Farm Book" is useful for general purposes, and as manuring is the basis of real farming, Harris' "Talks on Manures" is very valuable. On the whole, a few back volumes of the *American Agriculturist* might be more useful than many books, for taken together they are more comprehensive and complete.

**Steaming Hay—Feeding Meal.**—"R. S.," Cleveland, Ohio. After considerable experimenting, the writer concludes that steaming any but coarse fodder for cattle does not pay for the trouble. Many farmers of our acquaintance came to the same decision, and gave up steaming. In feeding meal, we find that it is beneficial and economical to grind the grain as finely as practicable, and to feed the meal with moistened cut hay. It is digested more thoroughly, and none is then found to pass off with the dung. But we have found that a dry feed of 3 quarts of meal at noon increases the milk. Our practice with milch cows in winter, is to feed 3 quarts of mixed meal and bran twice a day, with wet cut hay or other fodder, and give 3 quarts of dry meal at noon.

**Three Horses Abreast.**—Our sketch in the January number, showing an arrangement of lines for driving three horses abreast, has called out several letters from subscribers, giving other methods. "J. G. V. S.," Oswego, Kans., and "Young Farmer," Milford, Kans., send sketches of nearly the same method; it is illustrated in fig. 1. The same lines are used as for two horses, except

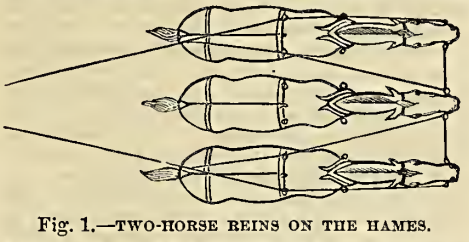


Fig. 1.—TWO-HORSE REINS ON THE HAMES.

short lines from bit to bit, to hold the horses' heads together. A modification of this arrangement consists in having a line connecting the heads of the two outside horses passing over the reins under the neck of the middle one, but not attached to him...." Wm. J. M.," Belleville, Ill., gives a diagram of his plan, and we have had it engraved, as shown in fig. 2. In this the two-horse lines are fastened to the hits, as represented, and two short straps are run from the hame-rings of the middle horse to the bits of the others, as in the engraving. Three horses

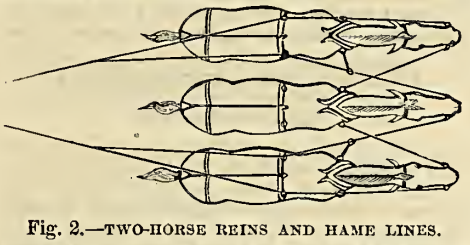


Fig. 2.—TWO-HORSE REINS AND HAME LINES.

abreast is a common thing in the West, and it is claimed to be no more inconvenient to hitch up and unhitch than a two-horse team, while it adds greatly to the draft-power of the team, with no increase in the weight of the wagon.

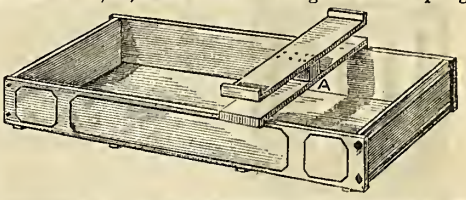
**Abortion in Cows.**—"H. C. W.," La Porte, Ind. It is dangerous to take a cow in a wagon for a distance of 10 miles when in her eighth month. The nervous excitement is sufficient to cause mischief, and there is great danger of actual bodily injury to the animal. The probability is, that having lost that calf and the one after it, this cow will never produce a live calf. To avoid this probability so far as possible, the cow may be kept loose, alone, and very quiet, in a roomy darkened stall. If there is any indication of trouble, give her 4 drams of Bromide of Potassium, daily, for five successive days. If she loses her calf again, the case may be considered hopeless.

**Soda-Ash as a Fertilizer.**—"G. R.," Glen's Falls, N. Y. Soda is not considered as a fertilizer; so little of it is required that an occasional dressing of salt, or the salt that is contained in barn-yard manure, is sufficient. Soda-ash is a crude carbonate of soda, and its effect upon the soil might be simply through its alkaline reactions, after the manner of lime or potash. But lime is cheaper, and potash more useful, though costing more, so that soda-ash is not given in the list of valuable fertilizers.

**About Sheep raising, etc.**—"C. A. F.," Toledo, Ohio. The Hon. Henry S. Randall is no longer living, nor is Geo. Wilkins of Texas. There is no journal devoted especially to sheep raising. All the information you need, may probably be had from the new edition of Stewart's "Shepherds' Manual," recently issued.—We have not seen the Texas Almanac for a year or two.

**Chester Pigs Wanted.**—"J. B. L." No persons connected with the *American Agriculturist*, or with the Orange Judd Co., have any pigs for sale. Their work on their farms is devoted to gathering information and experience which may be made useful to their readers. Those who wish to buy stock of any kind, should refer to the advertising columns, in which the names of trustworthy breeders will doubtless be found.

**An Easy Wagon Seat.**—"Old Subscriber," Fairfield Co., O., sends a sketch of a good double-spring




wagon-seat of his own invention, and *not patented*. It can be made by any one handy with tools. Take two boards, 12 inches wide, and long enough to project one inch over each side of the wagon body; place one above the other, with a block, *A*, 3½ inches square by 12 inches long, between them, and fasten the whole together by several bolts passed through the block, as shown in the engraving. Screw cleats upon the lower board, at each end, to hold it in place, and also upon the upper board to serve as guards, to prevent the driver slipping off of the seat. "All that have tried this seat, like it."

**"Witch Grass."**—"J. R. C.," Oregon. We suppose that by "Witch Grass," you refer to *Triticum repens*, the most frequent common names for which are, "Couch" and "Quack-grass," but it is also called "Quitch" and "Twitch-grass." Both in the fresh state and made into hay it is readily eaten by cattle, and is regarded as very nutritious. Its culture is not to be commended, as it would be an almost hopeless task to eradicate it when once in possession of the land. If it is established in a field, it would be better to utilize it, than to attempt to eradicate it, unless the land is very valuable.

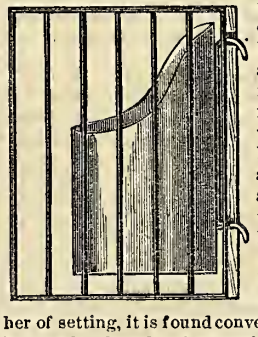
**Animal Fastenings.**—"S." Stanchions are the safest, most cleanly, and doubtless the best fastenings for cattle. There is no reason to suppose that cows are uncomfortable in them, unless it be that they are deprived of the pleasure of tormenting their neighbors.

**Angora Goats.**—"S. W." Angora goats are raised somewhat largely by Richard Peters, Atlanta, Ga. Few persons out of California keep these animals except for breeding purposes, as there is little demand for the wool, and unless the goats are kept in large flocks they are a nuisance. The selling price varies from $10 to $100 each.

**Bommer's Method of Making Manure.**—"A. J. W.," Lakefield, Ont. Multitudes of farmers are making manure upon the principle described in Bommer's book. It is simply an excellent method of composting. The cistern and pump are only needed when necessary to keep the liquid and solid manure together; the method may be modified in almost any convenient way so that this necessary part of it is carried out.

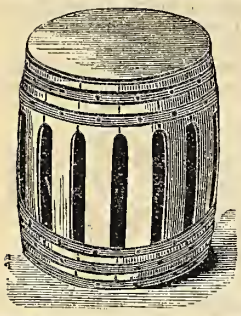
**Prize Butter at the International Dairy Fair.**—The premium of $250 offered by the Higgin's Salt Co., for the best sample of butter, was gained by Hiram Smith, of Sheboygan, Wis., and the prize for the best butter made in New York State was awarded to J. S. Murray, of Delhi. The Cooley creamery and process of setting the milk were used by both winners of the prizes.

**A Cheap Water Dish.**—"E. O. R.," Norfolk, Mass., sends a sketch of a water dish for poultry coops that is inexpensive and convenient. It is made by cutting away the top and part of one side of a fruit can, as represented in the engraving. A stiff wire is soldered to the long side of the cut can, and each end bent to form a hook, as shown. By these hooks the can is hung inside the bars of the coop, and for use in exhibition coops, or when confining a hen to break her of setting, it is found convenient and efficient. E. O. R. says he thought of patenting (?) this device, but has concluded to devote it to all who need such a contrivance.



**Artificial Fertilizer for Grass and Clover.**—"A. W.," Northcote, Ont. A good mixture for dressing newly seeded grass in the spring is as follows: 100 lbs. Peruvian guano, 50 lbs. muriate of potash (80 per cent), and 50 lbs. superphosphate of lime per acre. Twenty bushels of unleached wood ashes may be used in place of the potash salts. The mixture should be made immediately before it is used; otherwise the potash will cause decomposition and consequent waste in the guano.

**Another Water-Fountain for Poultry.**—"H. H. W.," Hartford, Ct., sends a sketch of a contrivance for a water-fountain for fowls. It is shown in the engraving, and consists of a small keg with slots cut in the sides between the hoops, 1½ inch wide, and about 2 inches apart. With a cover to the keg, the thing is complete. The fowls can not get into the water to soil it, nor drop filth into it from the top. The water remains sweet and pure all day. Mr. W. writes that he has used this in his yards for three years with better satisfaction than any other drinking dish, patented or otherwise.

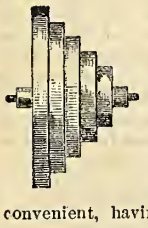


**Joseph N. Sturtevant,** died Jan. 19th, last, at South Framingham, Mass., aged 35. Mr. Sturtevant was educated at Bowdoin College, but early turned his attention to agriculture, and as one of three brothers, purchased Waushakum Farm, some ten years ago, where they lived as a happy family and did good work for agriculture. He was a member of the Mass. State Board of Agriculture, 1873-75, one of the editors the "North American Ayrshire Register," and a valued contributor to numerous agricultural journals. Modest and simple, he was loved by all and gave promise of a useful life, but ill-health prevented a full exercise of his powers. In him, the farming community lost a man of rare judgment, of thorough knowledge and an enthusiastic worker.

**Farm Implements and Farm Machinery.**—The work by John J. Thomas with the above title is unlike any other, as it deals with the principles upon which farm machinery is constructed and operates. A new edition which was announced as in preparation some months ago, is now nearly in press. Every farmer should understand what is here taught, and we know of no better work to put into the hands of a farmer's boy. Every intelligent boy will take all the more interest in a machine if he knows how it works, and he will know where to look for the trouble if it gets out of order. The principles upon which the machines operate are illustrated by various examples and experiments, which can not fail to be attractive to an intelligent boy, and give him a new interest in his occupation. Much is now written about "Keeping Boys on the Farm"; one method of doing this is to give the boys such books as "Thomas' Farm Implements" and let them see that work is not all drudgery, but affords food for thought, and brings them in contact with great natural laws. Published by the Orange Judd Company and sent post paid for $1.50.

**Forest Tree Planting.**—*A great help.*—In articles upon raising forest trees from seed, we have advised those intending to plant upon a small scale, to buy young trees rather than attempt to raise them. We have done this for the reason that just at the time the farmer is busiest, the young tree seedlings need the most care, and besides this, some of them, especially evergreens, need such treatment as only those with experience will be likely to give. The well known forest tree growers, Robt. Douglas & Sons, Wankegan, Ill., have undertaken to do that which will give a great impetus to forest tree planting on a small scale, as they offer to send seedling trees by mail, cheaper than any one can afford to raise them. They propose to send out dollar packages, by mail, containing from 50 to 100 trees, at the bare cost, the particulars are given in their circulars, which may be had upon application to them.

**Dimensions of Horse Power.**—"E. B. W.," Sullivan Co., N. Y. The horse-power illustrated in the *American Agriculturist* of January should have the upright shaft 8 inches in diameter, and square with the corners chamfered, so as to make it 8-sided. The drive wheel should be 8 feet in diameter, and the small gear wheel from 18 to 24 inches. The band pulley should be made to suit the work, and a cone pulley as shown in the engraving herewith, would be very convenient, having different sizes for different work.



**Merino Sheep Register.**—The Vermont Merino Sheep Breeder's Association have done a good work in the publication of this "Register." The work has been in preparation for several years, and we have personal knowledge of the great amount of labor expended upon it. In addition to the pedigrees of over 200 *flocks*, the well printed volume of 395 pages contains a history of the introduction and breeding of these sheep in this country, begining in 1793, their introduction and improvement in Vermont, etc. The volume is sold at $2—a very low price considering the *quality*. Its publication should greatly benefit the sheep breeders, and in this the working committee will find most of their reward. For the convenience of our breeders, we will obtain a few copies to supply from this office to those desiring them.

**Ayrshire Herd Books.**—The Secretary of the Ayrshire Breeder's Association writes: "Editors *American Agriculturist*—I find in the February number of your paper—p. 76—the statement that 'There are three different Ayrshire Herd-Books.' Allow me to state that there are only two Herd-Books at the present time in which pedigrees of Ayrshire cattle are registered, the N. A. A. R., and the Ayrshire Record, published by our Association. Our Herd Book is a continuation of the American and Canadian Ayrshire Herd Record; but a new series. The A. & C. A. H. R. has ceased to exist as a separate book receiving entries. You also state that Dr. Sturtevant's Book is perhaps the most carefully edited. We should be glad to know in what way it is more carefully edited than ours. Our regulations—see Constitution in our Herd-Book—are quite as strict as any that he has adopted. There are animals in his book 'wherein every animal traces to importation,' which we will not admit in ours, because we do not believe that they so trace, as we can find no proof to that effect. At our last annual meeting it was voted to discontinue the 'class not tracing directly to importation.' In the next volume this class will not appear. Hereafter our Book stands on the same basis as N. A. A. R., receiving only pedigrees tracing direct to importation. In the two Volumes already published by our Association, we think the class tracing directly to importation will bear comparison, as regards accuracy, with the pedigrees published in his book. If you have discovered any errors in our book, we shall be pleased to hear of them. We should be glad to submit the two Herd-Books to the inspection of impartial judges, to decide in which book the most errors are to be found. Yours, J. D. W. French."

**A Simple and Valuable Aid in Fence-Building.**—"R. B. K." contributes for the benefit of our readers a simple device used by him in fence-building on his Western farm. It is a gauge by which one end of the boards of a post and board-fence are held at a certain distance apart, while the other is being nailed. Take a piece of bass-wood board or similar material, 4½ feet long, by 4½ inches wide; put rivets through each end, to keep it from splitting; cut a slot, ½ inch wide down the center; make four semi-circular blocks, 1½ inch

Fig. 1.—THE GAUGE.

thick; put a $^5/_{16}$-inch bolt through each block and through the slot, securing it on the opposite side with nut and washers; then bolt a piece of 1½-inch band-iron, bent to a square hook, to the upper end, and the gauge is completed, as represented in fig. 1. The manner of using it is shown at fig. 2. The blocks are first adjusted

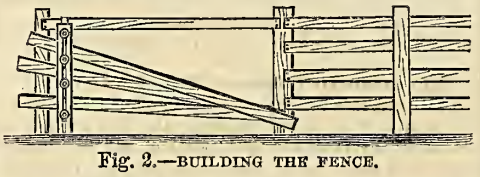


Fig. 2.—BUILDING THE FENCE.

at any desired distance apart, and the gauge is hung on the top board, which has previously been nailed in position, and one end of the other boards, to the number of 2, 3, or 4, placed on the blocks as indicated, while the free end is nailed to the preceding post; then the gauge ends are nailed to the last post, and so on. Mr. K. finds that he can build fence alone, by aid of this gauge, about as fast as having another man help him. He thinks, also, that it is a good plan to set the posts on alternate sides of the boarding, especially for a pasture fence.

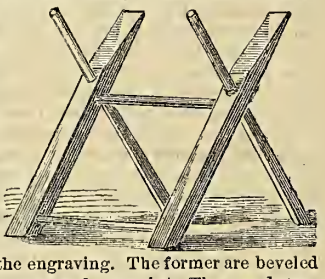
**The North-Eastern Bee-Keepers' Association** will hold its annual meeting at Syracuse, N. Y., on the 11th, 12th, and 13th inst. L. C. Root is President, and J. H. Nellis, Secretary.

**Paper "Oil Cloth."**—The substitution of paper as a basis for matting is, if we mistake not, an invention of C. T. Fay, of Camden, N. J.: At all events, he has made such matting for many years. In appearance it is hardly distinguishable from cloth; in any case the durability depends largely upon the character of the painted surface, and we have found the paper mats to wear very satisfactorily, while the price is greatly in their favor.

**North Carolina.**—The report of the Commissioner of Agriculture of North Carolina, L. L. Polk, shows that a good amount of work has been performed by the Board of Agriculture, which was organized only two years ago. Fish propagation and protection, have received needed attention, with encouraging results. The fertilizer law, which imposes a tax of $500 on each brand sold in the State, and requires a stated analysis on each parcel, is working well, and furnishes the funds to sustain the Board of Agriculture, and the Experiment Station. The latter institution, under the direction of Prof. A. R. Ledoux, is making good progress; it controls the fertilizer trade, is engaged in investigating the beet sugar and other questions, and is making preparations to control the quality of the seeds sold in the State. Jute, German Millet, Chufa, and Sugar Beets, are being introduced by the Board.

**Eighteen Million Spelling Books!** and not a single million, was what we intended to say last month (p. 47) in speaking of the "Hub" office building. There would be quite a gathering if all the children using these books could be collected at one grand "Spelling School."—Problems for the Boys and Girls: (1) If these spelling books, each 4½ by 7 inches in size, were laid side by side, how many acres would they cover?—(2) If each book contained 56 leaves (112 pages), how many acres would the paper cover?—(3) If each book weighed 3½ ounces, how many teams would it take to draw them, with a ton on each load?—(4) How long would the procession be if each team occupied 50 feet on the road?

**An Improved Saw-buck.**—"J. M. B.," Nelson, Pa., sends a sketch of a saw-buck which he thinks is an improvement on the ordinary form, as not being so liable to break under heavy sticks of wood. Two 3x4 ash or oak standards, 2½ feet long, are provided, and two other braces or standards of the same length, but made round, 1½ inch through, at the upper ends, as represented in the engraving. The former are beveled ten inches from the upper end to a point. The round standards pass through the others, piercing the sticks flatwise, and the two sides are held together by two 1½ inch rounds, as shown in the engraving.



**Horticultural Tacks.** — The double-pointed tacks—really tiny staples with sharp points—which are useful in such a variety of ways, are exceedingly handy for those who have to train climbers in the window or greenhouses. With a very slender vine, the tack may span it, and when driven into the wood-work, will hold it in the neatest possible manner. With large vines, the tacks may be driven in firmly, and the stem be fastened to it by a piece of bass-matting or other soft tie.

**Preserving Green Fodder.—"Ensilage."** The *American Agriculturist* first discussed the question of "ensilage," or the preservation of green corn fodder in trenches for winter use, some five years ago. Since then, great advances have been made in the practice in France, where the application of the method to corn-fodder originated, and to-day it is a decided success, and of great importance in stock-farming. "Ensilage" consists in storing green fodder, especially that of Indian corn, in above-ground cellars, or "Silos," in a manner to exclude the air and preserve it in a fresh state. An account of this method and the details of the present practice are recorded by M. Auguste Goffart, a leading French agriculturist, whose work has been translated by Mr. J. B. Brown, President of the New York Plow Co., and is presented in a neat book, with the title, "The Ensilage of Maize and other Green Fodder Crops." This book is timely, and should be widely read by American farmers. A copy can be obtained at this office for $1.00, post-paid.

**"New and Rare Plants."**—Is the modest title given by the Parsons & Son's Co., Flushing (L. I.), N. Y., to their new catalogue. Had they headed it, "The most remarkable collection of New and Rare Plants, especially from Japan, ever offered whether in this country or in Europe," it would have better described its contents. To a lover of plants, the perusal of this catalogue is a treat, and then the prices, considering the rarity of the plants, are very moderate—not half what would be charged in European nurseries for such plants—provided they could supply them. Those who are about to plant, should send for and consult this catalogue.

**A Good Seed drill** is indispensable in large gardens, and one accustomed to its use, would be at loss to manage even a small garden without its help. From a year's experience with Sargent's "Monitor Seed Drill," (see advertising columns), we can commend it as a most satisfactory and effective machine. Farmers who cultivate root crops, will find that this drill will soon pay for itself in the saving of seed.

**"Hog-dressed Calves."**—Inquiries as to what are Hog-dressed Calves, and how they are prepared, show that many of our present readers did not see the very full details we gave some years ago. This method of sending veal to market with the skin unremoved, often allows the farmer to dispose of his calves more advantageously. We can best answer inquiries by giving the method recommended by Messrs. E. & O. Ward, 279 Washington St., one of the oldest of our commission houses. They say: "Calves from 3 to 6 weeks old and weighing about 100 lbs., or say from 80 to 120 lbs., are the most desirable size for shipment to this market, and should be dressed in the following manner: When all is ready for the killing, take the calf gently (it must not be worried or chased), and should not be fed for a space of at least six hours previous. Tie a rope to the hind legs, and hang it up clear of the ground or floor, then cut the head off just behind the ears; when thoroughly bled out, put in the gambrel stick, and cut off the legs at the knee joint, then open the belly from just behind the kidneys to the breast-bone; next remove ALL the INTESTINES, including the liver, lights, and heart. If all this is well and properly done, the inside will present a clean appearance, free from blood or blood-stains. Now balance evenly on the gambrel, and place a stick of suitable length in the opening, to hold it in proper shape; then hang in a cool, dry place until the flesh is '*set*,' say from eight to twelve hours—it must hang until the animal heat is *all* out. The stick which was placed across the opening, should now be removed, unless quite warm weather. Mark by sewing a 'Shipping Tag' to the bag skin, between the hind legs, it will then be ready for shipment. *Note.*—A calf of only sixty pounds in weight, is liable to be taken by the Board of Health, as unfit for use."—This is important. EDS.

Basket Items continued on page 113.

## Important Experiments with Fertilizers.

No cultivator should fail to carefully examine, and study long and well, the table on page 91. The figures bring together in compact and convenient form for comparison, the results of a large number of carefully made experiments, on a variety of soils. By noting the kind and condition of the soil, described above the table, and then noting the kind of fertilizer, and its cost per acre, and the result shown in measuring up the crop yielded; and then comparing each set of figures in each column with the others in other parts of the table, a great deal of interesting information will be gleaned, besides practical suggestions for making similar experiments. (See remarks immediately under the table.) Scientists may theorize, and they are able to give important suggestions and to aid us in determining the kind, and quality, and purity of fertilizers; but the best way for every man to learn definitely what *his* soil most wants for any crop—what will pay best—is to put questions directly to the soil itself, on a moderate inexpensive scale at first, and thus make the soil tell him what it wants, or for what it gives back the best return. There ought to be ten thousand such experiments made during the present year. We have no doubt that it would pay grandly in the end, if at least every owner of a farm that has been cultivated a few years, should make for himself at least one set of experiments with fertilizers this very year.—We believe the forthcoming Report of the Conn. State Board of Agriculture will contain a full report of the experiments, briefly epitomized on page 91, and what they show and teach. We hope to announce in our next paper some plan by which all who may desire the report can obtain it at trifling expense.

## Our Rapidly Growing National Wealth.

The times have been hard these past five years; they are still so. Yet, as a people, we have for three years, at least, been rapidly growing richer in material wealth, and this is the case to-day. And what benefits the people as a whole, will in due time benefit the individuals making up the entire mass. In the era of inflation and wild speculations, of enormous expenditures, of money borrowed for war expenses, for building railroads, for municipal improvements, or those so-called, we imagined we were flourishing. It was a deception; we were only running in debt—were as a people and as individuals reveling in borrowed funds. As a nation, as a people, as individuals, we were, in 1872, relatively poorer than at any time before in this century. Expenses largely exceeded income. In 1873, we got to the end of our credit; the brakes were put on by foreign money lenders; everybody was scared. Then we began to see and *feel* the mass of debt.

For five years we have been getting down off from the "high horse." Expenses have been cut down, and the lower style of living has been *felt*. But we have been economizing, without greatly reducing the actual amount of production of real wealth, that which comes from the soil. Many hundreds of millions of dollars more have been produced during the past twelve months than have been expended. The figures will bear out this statement. We do not feel this, because so much of the increase has gone to pay up previously incurred debts; but we are gradually liquidating these, and if we keep on thus, we shall, as a people, have this surplus production to use and enjoy. Below is an illustration of what is stated above. For years we kept buying and using up vast amounts of foreign products—running in debt for them—paying in promises to pay, in Government and railway "bonds," in a mortgage upon our property. The following figures show how in 5 years we have diminished the importing of these foreign products, and on the other hand have been exporting and selling the products of our fields, factories, and mines.

| | Imports. | Exports. | *Bal. Against Us.* |
|---|---|---|---|
| 1869.... | $463,424,000 | $393,732,000..... | $69,692,000 |
| 1870.... | 486,696,000 | 484,439,000..... | 2,257,000 |
| 1871.... | 589,915,000 | 537,792,000..... | 52,123,000 |
| 1872 ... | 634,022,000 | 515,147,000..... | 118,875,000 |
| 1873.... | 539,337,000 | 566,792,000..... | 22,547,000 |
| | | | $265,494,000 |
| | | | *In Our Favor.* |
| 1874.... | $577,410,000 | $640,600,000..... | $63,190,000 |
| 1875.... | 525,786,000 | 590,251,000..... | 64,465,000 |
| 1876.... | 461,092,000 | 646,976,000..... | 185,884,000 |
| 1877 ... | 503,901,000 | 668,585,000..... | 164,684,000 |
| 1878.... | 460,630,000 | 763,198,000..... | 302,568,000 |
| | | | $780,791,000 |

These tables show that in the five years, 1869 to 1873, we were constantly piling up debts abroad, aggregating $265,494,000, while in the five years 1874–1878, we have sold more than we have bought each year, aggregating $780,791,000, of which the gain last year alone was $302,568,000, or nearly a million dollars for every working day.

## A New Hint to Housekeepers.

There is not the slightest doubt that if the science of nutrition and digestion, of the relative value of different kinds of food to supply nourishment and strength to the system, and the *best methods* of preparing various articles of diet, to make them palatable and attractive as well as economical, were better understood by the mass of housekeepers, there would be a great saving of expense, a great deal more of enjoyment, and that health would be largely increased. Miss JULIET CORSON is doing very much to promote these most desirable ends. Her book, "Twenty-five Cent Dinners for Families of Six," which is being rapidly circulated through the country, has already accomplished a good deal, and will do much more hereafter. Her "Cooking-School Text-Book and Housekeepers' Guide" is a most excellent work, giving in plain, easily understood language, directions for dishes suited to any table, from the simplest and cheapest up to the most elaborate and expensive. This work details the cost of each article of food, taking the average through the country. Another of her books, her "Cooking Manual," gives "Practical Directions for Economical Every Day Cookery." These books, if in the hands of every housekeeper, would doubtless quickly save many times their cost.

But Miss Corson is working in other ways. She gives public lectures to the people, and has organized classes for housekeepers, for regular cooks and house-help, including instruction among the poor, to children, etc. One of these courses of instruction is attended by ladies of the highest class, from Fifth avenue, Murray Hill, etc. A Representative of the *American Agriculturist* has frequently attended one of these courses, to report the proceedings, which are after this manner: At 35 East 17th Street a kitchen is fitted up with all needed apparatus, including various improved appliances of cookery, with chairs for 15 or 20 ladies. Miss Corson takes her place among her cooking apparatus very much as the Professor of Chemistry in a college does when lecturing to his classes, and at the same time conducting experiments with his retorts, his test-tubes, beaker glasses, etc. Following the order of her text-book, with copies of it in the hands of her students, for such they are, though matronly ladies and younger ladies preparing themselves to be worthy matrons in the future. Miss Corson thus not only gives her lectures or talks, but with her own hands goes through the various operations of preparing and cooking a great number of dishes, soups, roasts, vegetables, entrees, salads, desserts, etc., etc. The whole processes, from receiving the articles from the market to placing them upon the table, are gone through with, so that each "student" goes home with a clear, definite understanding of the whole, ready to put in practice what she has learned. Necessarily but one dinner course is taken up each afternoon, in a lesson of 2 to 3 hours.—Now for our

### Plan for the Housekeepers of a Neighborhood.

In every neighborhood, small or large, let a few of the housekeepers meet at the residence of one of their number, say once a week or fortnight, one of them being chosen as leader for the day—usually the lady of the house where the meeting is held. Let two or more articles of food be selected for that meeting, and let the whole operation of preparing and cooking, and eating them if you please, be gone through with, including discussions upon different methods and the best ones. Copies of Miss Corson's books to refer to will be helpful. Let the young ladies be present to see and learn. Can there be any question that such a series of meetings would result in great improvement? The ladies who meet in Miss Corson's room, tell us they derive great pleasure and profit. These local meetings will be an excellent substitute for some other social gatherings. Whoever moves in this enterprise will do a good work we are very sure.

### Another Good Thing to Do

The great mass of poor and ignorant people pay more for the nutriment they actually get, than many well-to-do, intelligent families. Their supplies are bought in driblets at double cost; they do not know how, or in what, they can obtain the most real nourishment for the least expense; and what they do get, could be made to do much better service if they knew *how* to prepare and properly cook it. If in each neighborhood two, or three, or more of the intelligent ladies, or even one of them, would undertake the work of educating the class referred to, in the direction indicated, it would often be of greater service than the organization of charitable associations. The superintendent of one of the best Insane Institutions in our country told us recently that the largest percentage of his 500 patients came from a class of laborers who lived chiefly on poorly cooked bread and salt pork fried hard. They lose the balance of mind because they are not sufficiently nourished with digestible food.

**Prickly Comfrey for Poultry.**—Last month's Basket contained a note from Mr. S. H. Rice, of Worcester, Mass., giving his success with Prickly Comfrey. Since then we have had the pleasure of a call from Mr. Rice, who gave us more in full his experience with the plant. He regards it as especially valuable for furnishing poultry confined in a yard, with a supply of fresh vegetable food. He advises the setting of plants a year old, a foot apart in well-manured beds 4 feet wide and as long as desired; these are to be surrounded at the sides and ends by boards 8 inches wide set on edge, and over them is to be placed a lattice-work of lath. The fowls are to be kept away from these until the plants are well established, when they are allowed to feed through the openings of the lattice-work. The lattice prevent the fowls from injuring the roots and buds, as they can only reach the leaves. We suggest that it would be better to have two beds, so that the plants in one might be growing while the fowls have access to the other.

## Editorial Correspondence From the Far West.

### Youthful Shepherds.

One pleasant day we rode twenty miles over the Laramie Plains, from Laramie City to the Little Laramie River, where we found a prosperous sheep-raiser from Nebraska, named Edward Farrell. There were no neighbors for miles around, with the exception of a nephew of Motley, the historian, who had left his father's pleasant home, near Boston, Mass., and located a sheep ranch close by here. The Farrells gave us a most hospitable reception, inasmuch as one of our party was Mr. Weston, the Auditor of the State of Nebraska. Furthermore they had long been subscribers to the *American Agriculturist*, and the last number lying on the table was not an unpleasant reminder of home to one on these far-away plains. We bade them good-bye late in the afternoon, turned off to the right of Sheep Mountain, and entering a narrow plain between high ranges of hills, spurred forward our jaded animals, until the gathering shadows warned us that we could proceed no further with safety. At daybreak we spied a large flock of sheep in a corral close by a rude cabin or dug-out, in which were two boys, sons of Mr. Farrell. Here, twelve miles or more from home, they had been tending a flock of twenty-three hundred sheep during the entire season. They shot their game with an old rifle, did their own cooking, and lived entirely alone with their dogs and two ponies employed in herding the sheep. They alternated in watching the sheep, which were driven into the corral every night, as a protection against bears, wolves, and other wild animals. An antelope which one of them had shot the day previous, was suspended near the door of the cabin. There was a good range here, and the father had in the spring-time sent the sheep, and the boys to possess it. You will be surprised when I tell you that these two lads, entrusted with the care of over two thousand sheep, and living here in this remote, secluded spot, were only eleven and thirteen years of age. It is astonishing, the early self-reliance which these frontier children display, and the skill which, as mere urchins, they attain in herding sheep.

### An Ambitious Frontiersman.

Near the site of Old Fort Kearney, in Western Nebraska, there has resided for years a queer character who is well known to the national representatives at Washington. At each recurring session of Congress, Mr. Moses H. Sydenham, for that is his name, appeals personally and through letters to Senators and Congressmen, to remove the National Capitol to this, "the geographical center of the United States and of the Universe." He is a monomaniac on the subject, and has designated the exact spot with a framework of poles. Tourists who have time to do so, stop off at Kearney Junction, to view the scene of one of Jules Vernes' pen portrayals in "Eighty Days Around the World," visit the site of the old Fort, and to have a chat with old Mr. Sydenham. We did not find him at home. Those, however, who informed us that he had gone to Washington, communicated several new and interesting facts about the old gentleman. In his last general circular to the Washington Solons, he guaranteed them that, in case they should decide to remove the Capitol to this "geographical center," he would sell enough corner lots and adjacent territory to pay for all the expenses of removal, and leave a small balance for the national exchequer, after he himself had deducted three per cent for transacting the very important business.

### Lady Excursionists.

When at Laramie, a year ago, we met the widow of the late lamented Mr. Ralston, of California, who, with her daughters and intended son-in-law, were preparing to make a horseback trip to the Yellow Stone. Ladies should not think of making such trips unless they have considerable nerve, are fond of wild game and relish a touch of hardship and adventure. I have, however, found very many lady tourists in these western regions, who enjoyed the experiences fully as much as the gentlemen. A few days ago, I met at Alamoosa, in Southern Colorado, one of a party of fair ladies from the Eastern States, who had been travelling the entire summer in a camp-wagon or "schooner," through the mountain regions of Colorado, camping out at night, having as their only male companion and protector, the stalwart driver who took care of the team and shot the game for them which they cooked. This lady was talented and the associate editor of a New England educational journal. She informed me that the expenses of the party were comparatively small. They experienced no fears from any source. They had fully recovered their health and were returning east with valuable stores of information from which to draw for years to come. In Northern Minnesota, I recently met another party of ladies, who, with their gentlemen companions were travelling in a more royal manner, but manifested fully as much zest and fondness for novelty and adventure. They were all from Boston. They came to Northern Minuesota in an elegant palace car, manufactured for and belonging to them. The coach was divided into compartments, including berths, sitting room and kitchen. All lived in this car, which had been drawn from point to point wherever inclination led them. The day we met them, the car came east over the Northern Pacific Road and was switched off at New York Mills for a short time, while the gentlemen hunted deer and the ladies fished and otherwise amused themselves. This party had been absent from Boston for several months, and were taking solid comfort and enjoyment. While the original cost of a coach is considerable, probably this mode of pleasure travel is the cheapest in the end, inasmuch as hotel bills, railway fares, palace car extras and other expenses attending ordinary travel are avoided. The party will probably go south next year, contracting with various railway officials to take their car to such interesting points as they may desire to visit from month to month.

### Western Words and Phrases.

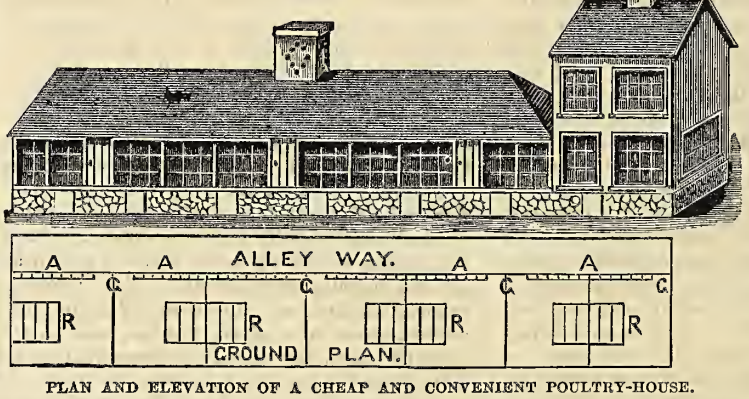
West of the Missouri River, the word "outfit" is made to do general duty in the vocabulary of all classes. An emigrant going over the plains in a schooner, or covered wagon, has his whole outfit with him—that is, family, household goods, etc. A farmer who comes to church with his children, has his outfit. If a straggling band of Indians pass through town, you are told that the whole outfit presents a shabby appearance. A handsome span of horses are called a handsome outfit. A female canine with a thrifty litter of young pups is styled a fine outfit, and so on. The word is a good one because handy, and conveying to one's mind what no other polysyllable or phrase expresses. In Colorado, children are frequently styled "half-breeds." Among the ranches, a new comer from the older States is called a "tender-foot." Cattle-herders are designated as "cow-punchers," and when eggs are passed around the table, you are invited to help yourself to "hen fruit." In Wyoming Territory, "get the drop on him," is a general expression. It comes down from the earlier experiences of the territory when desperadoes were so numerous and personal encounters were of every-day occurrence. If a highwayman got the drop on you, that is, anticipated you in drawing his revolver, discretion was deemed the better part of valor. If now one gets the start of you in a business transaction or in anything else, he has got the drop on you, so you must make the best of it and not fight. "Hands up," is the language which the stage robbers and train-wreckers address to passengers. The latter understand by this that if they desire to avoid being shot, they must hold their hands above their heads and remain perfectly still until the outlaws have secured their booty and made off with it. It was only the other day that a small gang of free-booters having their lair in Elk Mountain attacked a post store, north of Rock Creek, and compelled fourteen soldiers, wagon-drivers, and clerks to stand in a row on one side of the room, with their hands up, while they packed thirteen mules with groceries, boots, shoes, and other booty, and safely made off with it. There was considerable laughter at Laramie and elsewhere at the expense of this party who had been overawed and subjugated by a gang of robbers inferior in numbers. "But," said one of the plucked individuals subsequently, "You may think it cowardly to 'hands up' for an outlaw; if, however, he comes upon you suddenly, and puts a pistol to your head before you have time to collect your thoughts, you will be very glad to hands up and keep quiet." Stage and car robbers are now generally designated as road-agents through Wyoming. "You bet," "bounce," and "close out the whole business," meaning to be expeditious, are common expressions among some classes in Wyoming. "Rustler" is a favorite word in Utah. If one is a pushing business man, he is a rustler. If a lady makes a sensation in society, she is a rustler. The preacher who stirs up his congregation, or the politician who makes a successful campaign, is a rustler.

### The Best Cure for Dyspepsia.

If you are troubled with continued indigestion, go out to the Plains of Wyoming, or to the North Park region of Colorado, and camping out, live for a few weeks on antelope meat. If you are not already a good shot, a little practice with the rifle will enable you to bring down your game. There is nothing more palatable and efficacious in relieving dyspepsia, than antelope steaks cooked by the camp-fire.

## Convenient Poultry-House.

A Massachusetts subscriber, Mr. E. O. Rockwood, sends sketches and the following description of his poultry-house, which, for convenience, he claims to be the best he has ever seen. It is built in the most thorough manner, and the walls and roof are papered and shingled. It is 72 x 16 feet; front posts 4½ ft.; back posts 5½ ft.; roof ¼ pitch. The stone foundation makes the walls practically a foot or two higher. It is divided into seven rooms, six of which are 10 x 16 ft., and one 12 x 16, with a room up-stairs for setters. The house faces the south, with six windows on that side, of 7 x 9 glass. There are three doors on the front for taking out manure; the entrance door is through the large room at the right-hand end of the engraving. An alley-way, 4 ft. 10 inches wide, runs the whole length of the building. *G*, *G*, are gates opening into the room. The feed-boxes, *A* in the plan, are 5 inches wide by 2 deep, and are protected by racks made of ½ in. sticks driven into a 2 in. strip of board, 2½ in. apart. These boxes are placed on the front of the alley platform, and the nests, which are 15 inches each way, are directly above the feed-boxes. A close partition extends from the top of the nests to the roof of the house; all the partitions are made of planed stuff and jointed. The roosts, *R*, are 2 x 3 joists, planed, with the tops rounded, and are hung on hinges, so as to swing down and be out of way when one is at work in the house. Total cost of the building about $225. Mr. R. now has about 200 layers, with more in his other houses.




PLAN AND ELEVATION OF A CHEAP AND CONVENIENT POULTRY-HOUSE.

## Science Applied to Farming.—XLIX.

### Field Experiments with Fertilizers.—What Farmers have been doing.

If I have ever cherished any skepticism as to the ability or earnestness of progressive farmers in studying and learning the ways to make their farming better, it has been effectually removed by the reports I have received of field experiments with fertilizers last season. As will be remembered, the *American Agriculturist* proposed, last spring, some series of experiments, and arranged to provide the readers with samples of fertilizers for the purpose, of tested quality, and at prices just covering cost. Each article was put up in a small bag, containing enough for 1/10 acre, and numbered I, II, III, etc. Every bag had a label giving amounts and proportions of its ingredients. The several small bags were packed in larger bags for shipment. Besides Nos. I to VII, which constituted "Set A," there were a number of extras, so that the whole list included samples of all the more important fertilizers in the market. They averaged, on analysis, better than the guarantees. With each lot was sent a pamphlet, containing explanations and directions for the experiments, and blanks on which any who might care to take the needed trouble, were requested to note the results and forward them to me. The Company by whom the fertilizers were put up, supplied numerous sets to their customers; the Vermont Agricultural College distributed a number among the farmers of that State; the Maine Agricultural College made several series of experiments with them. Representatives of Agricultural Societies and prominent farmers in various parts of the country joined in the enterprise, so that the trials were made from Canada to Florida, and from Maine to Wisconsin.

### The Reports and their Value.

The blanks for reporting experiments were sheets of paper, about 11 x 17 inches, with spaces for noting, on one side: (1) Description of soil; situation, kind, texture, dry or wet, depth of surface soil, character of subsoil, etc., etc.—(2) Previous treatment, manuring, and yield.—(3) Weather during experiment.—(4) Fertilizers and how applied.—(5) Method of sowing, planting, tillage, etc.—(6) Other details and remarks. The other side was devoted to details of size of plots, dates of planting and harvesting, amounts, quality, and value of produce in grain, roots, tubers, stalks, etc., by pounds and bushels; calculated profit or loss, etc., Nearly sixty of these reports are before me. Some are brief, most are well filled and many entirely so, while several have additional interesting and suggestive statements covering a number of pages of foolscap, for which there was not room on the blanks.

In accuracy and fulness of detail, these reports far exceed my expectations. By uniting in experiments on a common plan, but with a great variety of places, soils, crops and other circumstances, the experimenters have, besides learning about the fertilizers, their soils and their crops, made an extremely valuable contribution to our knowledge of the ways plants feed, and how fertilizers affect their growth. On the vexed problem of the capacity of corn to get its supplies of food from soil and air and the effects of fertilizers upon it, for instance, these reports throw more light than all the other experimental data I have ever been able to obtain. From a detailed account prepared for the forthcoming report of the Conn. Board of Agriculture, I condense a few statements of plans and results.

Three kinds of experiments were suggested: (1) for testing soils; (2) for testing the action of fertilizers; and (3) for obtaining more general information. It was recommended to have plans complete before starting, to select "worn out" soil for soil tests, and uniform soil for all, to lay out plots accurately, to diffuse the fertilizers well through the soil, to leave several unmanured plots for comparison, to make accurate observations, to report them fully, and especially to arrange to carry the trials through a series of years.

### Experiments Especially for Testing Soils.

Suppose a farmer wishes to ask: "*What fertilizing materials does my soil most need in order to bring me crops?*" Or to state it more fully: "*Of the ingredients of plant-food which my crops must have, what ones can this soil furnish from its own stores, and what ones must I give it to make up the deficiencies in its supply?*—For this, an experiment was suggested in which the three ingredients of plant-food most important from the agricultural point of view, viz.: Phosphoric Acid, Nitrogen, and Potash, were to be used, each by itself; two by two, and all three together. Results of some of these tests of the soil are given in the condensed table presented above.

### Samples of Field Experiments with Fertilizers, 1878.

Plot II. W. I. Bartholomew, Putnam, Conn.....Hill land, dark loam, compact subsoil, worn out meadow.
Plot 12. Halsey P. Clarke, Wyoming, R. I.....Loam, gravelly hard subsoil, worn out meadow.
Plot 8. Nathan B. Lewis, Pine Hill, R. I.....Upland, gravelly and light, gravelly subsoil, poor pasture.
Plot III. Chester Sage, Middletown, Conn.....Heavy loam, hard-pan subsoil, worn out meadow.
Plot 10. Ed. F. Smith, Tunbridge, Vt.....Low land, heavy loam, compact subsoil, not adapted to corn.
Plot 27. W. I. Bartholomew, Putnam, Conn.....Plain land, gravelly loam, compact subsoil, in fair condition.
Plot 29. S. W. Crocker, St. Albans, Me.....Slatey and clayey loam, hard-pan subsoil, in poor condition.
Plot 38. Prof. J. R. Farrington, Orono, Me.....Moist heavy loam, underdrained, worn out meadow.

| Number of Bag | | 0 | I | II | III | IV | XIII | V | VI | VII | | 00 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kinds and Amounts of Fertilizing Materials Applied per Acre. | | *No Manure.* | *Nitrate of Soda 200 lbs.** | *Dissolved Bone Black 300 lbs.* | *Muriate of Potash 200 lbs.** | *Nitrate of Soda 150 lbs. Dis. Bone Black 300 lbs.* | *Nitrate of Soda 150 lbs. Muriate of Potash 200 lbs.* | *Dis. Bone Black 300 lbs. Muriate of Potash 200 lbs.* | *Nitrate of Soda 150 lbs. Dis. Bone Black 300 lbs. Muriate of Potash 200 lbs.** | *Plaster 200 lbs.* | *Farm Manure.* | *No Manure.* |
| Valuable Ingredients Applied per Acre. | | | *Nitrogen 32 lbs.* | *Phos. Acid 48 lbs.* | *Potash 100 lbs.* | *Nitrogen 24 lbs. Phos. Acid 48 lbs.* | *Nitrogen 24 lbs. Potash 100 lbs.* | *Phos. Acid 48 lbs. Potash 100 lbs.* | *Nitrogen 24 lbs. Phos. Acid 48 lbs. Potash 100 lbs.* | *Sulp'ric Acid and Lime.* | *Complete Fertilizer.* | |
| Cost per Acre | | | $7.50 | $5.25 | $4.50 | $10.88 | $10.13 | $9.75 | $15.38 | $0.80 | var'ble | |
| Yield per Acre | | bu. | bu. | bu. | bu. | bu. | bu. | bu | bu. | bu | bu | bu. |
| CORN. | II | 17.7 | 18.7 | 39.9 | 19.1 | 41 9 | 21.1 | 43.1 | 51.7 | | 49.8 | |
| | 12 | 26.3 | 35.1 | 49.5 | 35.1 | 67.4 | | 67.4 | 86.1 | 55.6 | 48.1 | 26.3 |
| | 8 | 7.5 | 5.6 | 20.7 | 7.6 | 28.8 | | 23.8 | 27.5 | 7.5 | 32.5 | |
| | III | 11.3 | 21.5 | 16.5 | 62.3 | 11.2 | 68.9 | 70.3 | 84. | | 43.3 | 7. |
| | 10 | 27.5 | 35. | 35. | 32.5 | 35. | 32.5 | 35. | 32.5 | 27.5 | 40. | 31.9 |
| | Average† | 24.6 | 30.4 | 33.5 | 33.3 | 39.1 | 39.6 | 42.9 | 48.6 | 28.9 | 45.9 | 24.4 |
| POTATOES. | 27 | 130. | 162. | 200. | 125. | 210. | | 220. | 250. | 150 | | |
| | 29 | 60. | 76.6 | 100. | 93.3 | 106.6 | | 150. | 170. | 93.3 | 146. | 60. |
| | Average‡ | 100. | 103. | 123.4 | 129.6 | 143.2 | | 153.4 | 177.3 | 106. | 132.9 | 81.5 |
| TURNIPS. | 38 | 225. | 285. | 315. | 240. | 428. | 203. | 413. | 518. | 263. | 300. | |

* In Plots II and III, only 150 lbs. † Average of 27 experiments with corn. ‡ Average of 9 experiments with potatoes.

[**Explanation of Table.**—A little careful study of the above table will bring out its great value clearly. Thus, for example, in Plot II, the 150 lbs. per acre of Nitrate of Soda, costing $5.62½, increased the yield of corn 1 bushel; 300 lbs. of dissolved bone-black (charred bones) added over 22 bushels at a cost of $5.25; while the two together (IV) added 24.2 bushels at a cost of $10.88, and 200 lbs. of Muriate of Potash with these (VI) increased the yield by 34 bushels, at a cost of $15.38. In Plot III, 150 lbs. of Muriate of Potash, costing $3.37½, increased the yield by 51 bushels. In the average of 27 different experiments on as many different farms, the greatest increase—a double crop—over no manure, is shown under No. VI, with the application of 150 lbs. Nitrate of Soda, 300 lbs. dissolved bone-black, and 200 lbs. of Muriate of Potash. But the greatest *average profit* was with No. V, where 200 lbs. each of Superphosphate and Muriate of Potash increased the average yield of corn 18½ bushels, at a cost of $9.75. Every figure in the table, compared with others, tells a story of its own, and the whole table may well be studied in detail, long and carefully, and in connection with the description of the soil given above.—Eds ]

### Soils in which Phosphoric Acid is Chiefly Needed.

In Mr. Bartholemew's corn experiment, Plot II, every portion which got phosphoric acid brought a good crop; every one without it failed. The nitrogen and potash both increased the yield, but reckoning a bushel of corn with its stalks at 80 cts. neither increased it enough to pay the cost. This experiment was made on the same field as the one reported for 1877, in which the crop rose and fell with the phosphoric acid, while it paid very little attention to the other ingredients. The experiment of 1877 was also repeated in 1878, with the same fertilizers on the same plots, and with almost identical results. With 300 lbs. of superphosphate per acre, the yield in the experiments of 1877, in the same repeated 1878, and in the new experiments of 1878, in every case came within about one bushel of 40 bushels per acre. With less superphosphate the yield fell off, while to get it much higher required other materials. Hog-manure, with superphosphate, gave a very large crop. Mr. Bartholemew's experiment with potatoes, No. 27, was made on another field, on low land, the corn being on the top of a hill. The potatoes were most helped by the phosphoric acid, but as seems to be oftener the case with them than with corn, responded profitably to the nitrogen as well. In Plots 12, 8, and 29, likewise, the preponderating influence of phosphoric acid is clear, though the corn in 12 and the potatoes in 29 are helped by the other materials also, as shown in several columns. There are, however, a good many

### Soils which respond well to Potash.

In Mr. Sage's experiment, Plot III, for instance, every crop with potash salts was large, every one without them a failure. The potash salts repaid their cost more than ten-fold. But while the potash was most important, the other materials helped, and the combination of the three gave by far the largest crop. This tallies well with Mr. Sage's experiment on an adjoining field, described last year. Some of the reports give still more cogent illustrations of the great usefulness of the potash salts.

### Cases in which None of the Fertilizers were Particularly Useful

are common; Plot 10 is such a one; Plot 8 gives very small crops also. Indeed, these experiments illustrate very forcibly a fact that few farmers appreciate, namely, that there are a great many soils which will not pay for the use of artificial fertilizers, at least not until they are better tilled, irrigated, drained, or otherwise improved. In short, the reports before me are full of illustrations of the important facts that:

1. Soils vary widely in their capacities for supplying crops with food, and consequently in their demands for fertilizers.

2. Some soils will give good returns for fertilizers. Others, without previous amendment, will not.

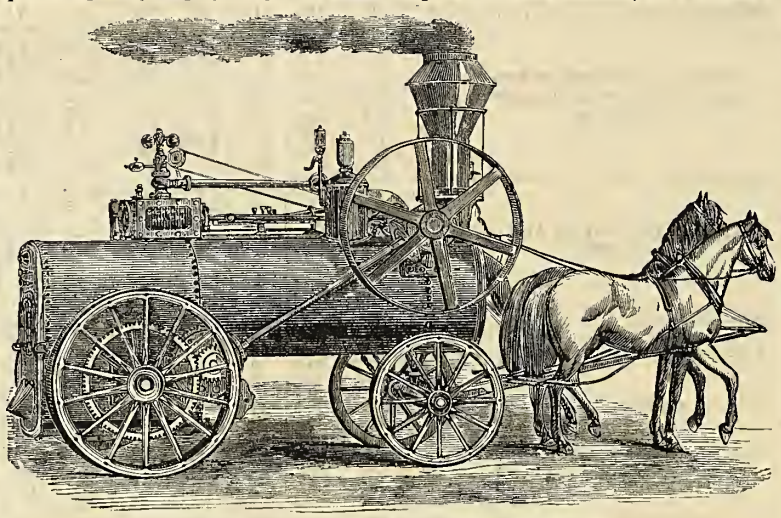
3. The only way to find what a soil wants is to study it by careful observation and experiments.

But these are only part and not the most important of the facts our experiments illustrate and prove. More another time. W. O. Atwater,

*Wesleyan University, Middletown, Conn.*

## Self-propelling Farm Engines.

The wonderful advance in the application of improved machinery to the various operations of agriculture, can be best appreciated by those whose experience and observation extend back thirty years. And now brute force is rapidly giving way to steam power. Steam engines are coming into common use on large farms in every section of the country, and are now quite frequently employed by threshers in grain growing districts, as being more economical than horse-power. The chief objection of the numerous "thresher men"—who travel from farm to farm throughout the threshing season, doing the work of each in turn—to the use of steam, is the difficulty of moving the heavy engines from place to place, especially in a hilly country and over bad roads. The same objection is made by those farmers who have work enough to warrant them in owning the threshing apparatus themselves. When the threshing is done in the fields, the unevenness of the ground, plowed land and sloughs, prevent the moving of heavy machinery except by the use of large teams of horses, at considerable expense of time. Various manufacturers have sought to overcome these difficulties, by the application of the power of the engine to its own road wheels, rather unsuccessfully, however, in most instances, owing to the complicated machinery and intricate steering apparatus. In the engraving herewith, is represented a traction engine that is quite efficient in its working, which is manufactured by Messrs. G. & C. Cooper, Mt Vernon, Ohio. In this the power is applied to the running wheels of a simple farm engine, and all expensive and troublesome steering machinery is avoided by using a pair of horses to *guide* the apparatus along the road: a seat is fixed on the opposite side from that shown in the engraving, for the driver. Without this traction attachment, four to six horses were used to draw the engine, while now but two are required to guide it; the power also suffices to draw a tender or separator, or both, by hitching them on behind the engine, and greater speed along the highway is obtainable than is safe with horses. It is said that the engine moves easily over rough and hilly roads, as well as over plowed ground, etc., and when it arrives at its destination, it is all ready to perform all the work of a stationary engine, as well as before the traction attachment was applied.



SELF-PROPELLING FARM ENGINE ON THE ROAD.

## Indian Corn—Newer Varieties of Promise.

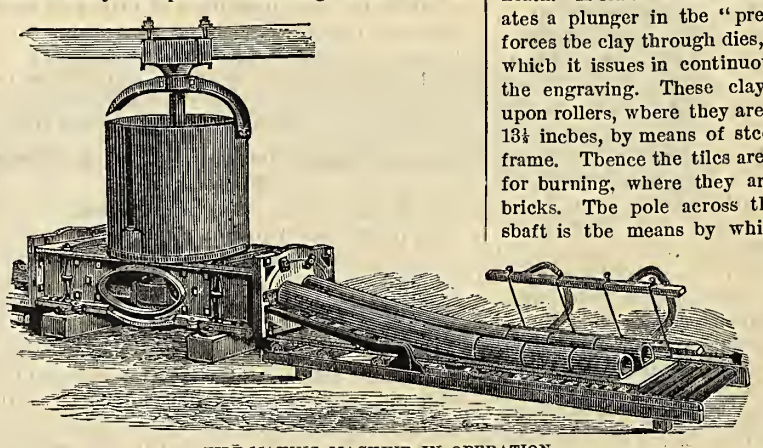
The past few years have witnessed a rapid improvement in the seed of farm crops, and consequently a marked advance in the quality and amount of the products. Previously, garden vegetables, fruits, and ornamental and flowering plants had been the chief objects of study by the experimenters who sought improved varieties. Among farm-crops, the potato has been foremost in the onward march, and for a few years we have been chronicling progress in the improvement of wheat. Indian corn has, perhaps, been the most backward of any of the prominent crops, and cultivators have had few distinct varieties to choose from. Here and there were farmers who, by careful selection, year after year, had established a local variety of more or less prominence and value. Some of these, possessing more skill and knowledge than their fellows, have, by years of perseverance, and by means of selection and crossing, succeeded in producing varieties that stand ahead of all others in quality and productiveness. Without placing any one above another, as all the new sorts require a longer trial and general use to determine their relative value, we name as promising varieties the "White Prolific," produced by A. E. Blount, of Tennessee; the "Early Compton," brought out by J. J. H. Gregory, the Massachusetts seedsman, and the "Wanshakum Thoroughbred." The "White Prolific" is an eight-rowed, white flint corn, with short, well-shaped ears, small cobs, and unusually productive. It seems adapted to a wide latitude, as its home is Tennessee, and we hear of it from many Northern States, and have seen it growing in Northern New Jersey, where one of our editors raised at the rate of 150 bushels of shelled corn per acre on an experimental plot (see February number, page 93). Many of the stalks in this field bore 3 to 5 ears each, and stalks have been sent to our office from other farmers, bearing 4 ears. The ears are uniform in size from end to end, average 8 to 9 inches in length, and the kernels are hard, well-shaped, and compactly placed on the cob. The meal produced from this grain is of a superior quality. There is an objection to the "White Prolific," viz., its very tall and woody stalks, which is a quite serious one in the eyes of the northern farmer who looks to his corn-field as a source of fodder. Yet the tops above the ears are succulent and edible, and also the leaves on the butts. By adopting the southern method of harvesting the fodder, as described on page 96, this feature becomes less objectionable. The "Early Compton" corn originated in New England, from what is known as the Massachusetts or Canadian Yellow Flint. What is claimed for it is great productiveness and early maturity; it is specially adapted to the Northern States. It is an eight-rowed, yellow flint variety, with ears averaging 8 to 10 inches in length, well-shaped, cobs small, kernels hard, and of good form. Reports from farmers planting the "Compton," are, on the whole, quite favorable; but it evidently did not remain in the hands of the originator long enough to fix its characteristics, as the ears often vary from 8 to 10-rowed, and it is not always uniform in some other respects, though a very promising variety.

The "Wanshakum Thoroughbred" is the result of four years of careful selection and "breeding" at "Waushakum Farm" in Massachusetts. It is an eight-rowed, yellow flint corn. The course pursued was to take ears from stalks bearing two or more, and from these selecting ears that were uniform in every way as compared with each other, having small cobs, the kernels compactly placed on the cob in straight rows, and uniform in size and shape throughout. So careful was this selection, that the second year, out of 90 bushels of ears from two-eared stalks, only 1¼ bushel were chosen for seed. Then in the seed-plot, all tassels (the pollen-bearing flowers) on stalks where there were no ears, were cut down before casting their pollen, in order that they might not influence the production of barren plants in the future—it being held that imperfect corn plants were as bad in the seed plot, as a scrub bull among a breed of choice cows. The result of this careful work is a very uniform corn, a small, densely packed cob, and unusual productiveness. We have seen this corn on the scales weighing 64 pounds to the bushel. The stalks of this variety are small and they make excellent fodder.

The methods pursued in the production of such varieties are such as every intelligent farmer can practise, but it does not pay to wait the years necessary to the grading up of seed when it can be purchased. The better way is to procure a small quantity, then by *continuing the course* pursued in bringing the seed to its present point, its quality can be kept at a profitable grade. But farmers should remember that seed alone will not produce large crops; a well prepared soil, abundant manuring, and thorough cultivation are also important essentials to success in this crop as in all others.

## How Drain Tiles are Made.

As one lays the red brick-tile on the level bottom of the ditches prepared for them, he may wonder how these hard tubes are made. The method of their manufacture is clearly shown in a pamphlet issued by the "Phœnix Machine works," Indianapolis, Ind. This Company manufacture the apparatus by which tiles are made, and we have had an illustration of it engraved. The machine is a simple affair, and the process is by no means intricate; but it should be remembered that the simpler a machine and its working are, the greater and more valuable is the invention. Of course good clay is the first requisite: this is placed in the upright cylinder or hopper, where it is tempered by wings attached to the shaft and passed down into chambers underneath. A crank at the lower end of the shaft operates a plunger in the "pressure chambers," that forces the clay through dies, from the outer end of which it issues in continuous tubes, as shown in the engraving. These clay tubes are delivered upon rollers, where they are cut off in lengths of 13¼ inches, by means of steel wires fastened in a frame. Thence the tiles are removed to the kilns for burning, where they are treated similarly to bricks. The pole across the upper end of the shaft is the means by which power is applied. These machines are strongly made and are said to be very efficient. The manufacture of tiles is one of the many objects for which farmers may associate with benefit. In localities at a distance from any tile factory, several farmers can unite for the purchase of a machine, and not only supply themselves with the needed tiles at a much lower cost than otherwise possible, but sell enough to others to pay for the machine in part, if not entirely. Co-operation of this kind is often useful and profitable, but to be effective, it needs *one* driving and go-a-head man, who will "co-operate" by being the head and front of the association, and attending to all the details. The name "Phœnix" is not an inapt name to apply to an apparatus turning out an article that is only perfected by passing through fire, though hardly born of the fire like the fabled bird from which that name is derived



TILE-MAKING MACHINE IN OPERATION.

## Rumpless Fowls.

Among the fowls which are noted for their peculiarity, if not grotesqueness, of form and figure, the rumpless varieties are conspicuous. It is said that these originated from the Polish breeds, and that some of them formerly bore top-knots and partially developed beards. When first brought forward prominently they went by the name of "Glendrocks," but this soon gave way to the term "rumpless," which is now applied to all of them indiscriminately. By a process of improvement their original character has been much changed; the top-knot and beard, which were quite imperfect, and the partial leg-feathering and objectionable vulture hocks were bred out, making them as attractive as is possible for so deformed a bird to be. Their anatomy is deficient in the usual prolongation of the vertebral column to form the "rump" upon which the tail feathers of most other fowls are planted; so that in place of the usual ornamental tail, that part of the body is covered by a few back or saddle feathers. In color they were formerly black, or white, or a mixture of these; the so-called "improved" pure-bred fowl is now white and has an upright carriage. Some excellent flocks that we have seen are mottled black and white, somewhat resembling the "Dominique" in color, and are neat and attractive in appearance, being compact in form, energetic in spirit, and having a fine carriage. These fowls usually occupy an inferior position, being somewhat tender in constitution, and thus liable to contract such diseases as roup and tuberculosis during cold, stormy weather; but the above-mentioned flocks are as hardy as any other breeds, are good layers, and fair table fowls. One Orange County farmer that we know of—and who keeps nothing on his farm that does not pay—has bred them for many years and finds them a source of considerable profit; his poultry always brings an extra price in the market, and has become quite noted among certain consumers who know his trade-mark, which consists in the absence of the "bishop's nose." He says they are "first-class layers, the best of mothers, and of the hardiest constitution. He always keeps all the pullets for layers. They are the finest fowls when dressed for market he has ever sold, and can never get too many of them." The sexes are not easily distinguishable when young, though possessing marked distinctions when full-grown, which are well represented in the engraving. While rumpless fowls in general have not a very good reputation, the experience of some, indicates that this breed has capabilities worthy of the attention of the ambitious and careful poultry breeder.

A TRIO OF RUMPLESS FOWLS OF THE IMPROVED VARIETY.

**Hoeing Wheat to Fight Insects.**—In the rapidly increasing practice of extra manuring and cultivation of wheat, as by drilling and hoeing, it is found in very many cases that the Hessian fly and other insects, are far less troublesome than on the wheat fields where only ordinary cultivation is practised. It frequently occurs, too, that superior cultivation permits of earlier sowing in the fall; the extra growth more than offsetting the damage done by the insects, to avoid which most farmers now are obliged to resort to late planting. Several examples are cited where drilled and cultivated fields, grown beside ordinary broadcast sown and lightly manured fields, with results wholly in favor of the former, the Hessian fly greatly damaging if not totally destroying the latter, while the cultivated fields escaped almost unharmed. These facts are brought out in the reports published last month, which all wheat growers may study with profit.

## Polled or Hornless Cattle.

### The Different Breeds Described.

The higher position that polled cattle are taking in Europe, and frequent mention of them in the *American Agriculturist*, have led to several calls for a more particular description of the various families or breeds of the class. The terms, "polled," "dodded," "humbled," "mooley," "hornless," and "no-horn," are all applied to these cattle. In this country, where they are usually called "mooley cows," specimens are frequently found in many sections, and sometimes they are the prevailing breed of a locality. It is commonly supposed here, that these hornless cattle are descendants of the domesticated buffalo of the West, the females of which almost invariably are hornless, the bulls having these weapons of defence and doing the fighting. Some of our polled cattle may have had such an origin, but it is known that many are the descendants of occasional importations, which have become scattered about the country. In Great Britain, where their history for more than a hundred years is familiar, it is an authenticated fact, that at first the Aberdeens, for example, were a class of cattle *with* and *without* horns, but evidently with a tendency to the latter condition. Sometimes animals are found with horns hanging beside the head, quite loose in the skin, there evidently being no development of bone from the skull within to make them firm. There are apparently three distinct breeds of polled cattle in Great Britain: "the "Angus" or "Aberdeen," the "Galloways," and the "Suffolk" or "Norfolk." The "Angus" breed, according to Low's "Cattle of the British Islands," originated over a century ago in the north of Scotland, when the agriculture of that region began a course of rapid development. They are now thickly scattered throughout the grazing regions of Great Britain. By careful breeding they have rapidly improved of late years, and, with the "Galloways," are now a favorite beef cattle of the great English markets, for the economy of their carcasses and the quality of their meat. The county of Aberdeen breeds more cattle especially for beef than any other county in the kingdom, Galloway probably ranking next. At the recent Paris Exhibition, the "Aberdeens" carried off the highest honors over all other breeds of beef cattle. In form they are compact, well proportioned, straight backed, larger limbed than the "Galloways," which they somewhat resemble in general characteristics; hair soft and fine; skin soft; color varied, but mostly black with white marks; some are brindled, but solid black is preferred. They have a gentle disposition, mature early, and attain great weights. The breed is not adapted to the dairy; it produces beef rather than milk.

The "Galloways" originated in the county bearing that name, and are particularly adapted to hilly districts, having hardy constitutions, and being good feeders. Black is their predominating color, and is regarded as an indication of hardiness and purity of blood. In form, the "Galloway" is a compact animal, well proportioned, fine-boned, clean, round, broad; legs short; neck rather coarse; back level from head to tail; long in the quarter; deep in the chest; hair long and soft, though coarser than that of the "Aberdeen," or of the "Suffolks;" skin rather hard and firm. A century ago the "Galloways" frequently had small horns, but are now entirely without them, except an occasional one hanging loose in the skin. The "Galloway rib" is well known in the London markets as especially delicate. These cattle are hardy, docile, and indifferent milkers, but are superior beef animals.

The "Norfolk" or "Suffolk" breed, which we described in the *American Agriculturist* for June and September, 1878, is descended from the "Galloways," but now differs from that breed considerably. In color it is a reddish brown or deep red. The neck and shoulders, which are heavy in the "Galloways" are light and thin in the "Suffolks;"

the ribs are shorter in the latter breed. The "Suffolks" combine the qualities of being excellent beef animals as well as liberal milk producers, though the meat is not considered quite equal to that of the other polled breeds. They are heavy-bodied cattle, with smooth quarters, and flesh laid on evenly; disposition mild. This breed would be a desirable one for parts of this country, especially where cold winters prevail, on account of their hardy constitution and heavy coat of hair, and their being good feeders, thriving on coarse fodder. The fact that the "Suffolks" are hornless, are good dairy cattle, and finally make good beef, and are economical feeders, renders them suitable for a large class of farmers, and we expect to see them, with the other two breeds above mentioned, rapidly gaining a greater popularity among our agriculturists, particularly the beef producers of the West.

## Among the Farmers.—No. 38.

BY ONE OF THEM.

### Ear-Marks for Cattle.

I have been discussing the subject of ear-marks with several good farmers and breeders lately. Mr. Samuel J. Sharpless showed me an admirable notching punch that cuts the notch here engraved, which, in his experience, he has found not likely to grow together, nor to become indistinct, while it is not observable at a little distance. This is much better than the hacking and defacing which ears are usually subjected to when the notching is done by the knife or the common notching punch. The systems in accordance with which sheep, cattle, and pigs may be numbered by notching their ears, are various. I give two of them: In fig. 1 each notch in the left ear counts one, except the one in the point which counts 5. Those in the right ear count ten, except one in the point counting 50. Thus every number up to 99, inclusive, may be marked. A *hole*

Fig. 1.—EAR-NOTCHES WHICH NUMBER 167.

in either ear means 100; so that without obviously marring the ears every number up to 800 at least may be marked. Another system (fig. 2) employs notches in the *top* of the left ear to indicate tens up to 40, while notches in the edges of the right ear indicate hundreds, except 50, shown by a notch in the tip of the right; a round hole in either ear indicates 1,000. We naturally shrink from giving a creature pain, and this is but very slightly painful. The animals require no effort to control them, and wince but little when a notch is cut. Branding with a hot iron, so generally practised in many parts of the country, hurts a great deal worse.

Zinc ear-labels, which are strips of that metal inserted in the lower edge of the ear, bearing the

Fig. 2.—EAR-NOTCHES WHICH NUMBER 1268.

owner's name and the number of the animal, are very convenient and easily attached, but they tear out sometimes, and may at any time be changed, which is very undesirable, an animal once marked by the breeder should forever after carry that mark unaltered. Notches serve as positive marks of identification, and may be so recorded in herd books, but to record a metallic ear-label is almost as preposterous as it would be to record as a mark of identification, "tarred on left shoulder."

### Sugar from Beets.

I was gratified the other day at receiving a call from Theodore Gennert, who will be long known in connection with the production of beet-sugar as the pioneer in what will surely be a prominent industry in this country in the near future. I am almost afraid to think how many years ago it was that I first made his acquaintance in the sugar-house at Chatsworth, Illinois; and yet what seemed then to promise speedy success and even wealth to those who were engaged in it, is to-day but little nearer, apparently, to that realization. Mr. Gennert is now in Maine, and as enthusiastic as ever on this subject. I perceive a change in his tone, however, that indicates the wisdom of dear bought experience. At Chatsworth, 15 years ago, we talked of sugar and of beef. Now we talk of *beef* and of sugar. At the West, when corn was liable to be 15 to 20 cents a bushel, and where it was universally regarded as better feed for beeves than roots in any form, the great bulk of the nutritive portion of the crop was lost. At the East it is not so. It will pay here to raise sugar-beets simply as feed. The sugar which the roots contain in their natural state makes them palatable, indeed, and is fattening, but it can be entirely withdrawn without seriously lessening their nutritive qualities as feed for beef cattle or "store" cattle. The residue after the sugar is extracted is highly relished by cattle, and may be fed to them freely. So that those who can feed it, really have whatever they realize, on account of the sugar, as clear gain. Beet-sugar production depends absolutely, from an economical stand-point, upon the complete consumption by animals of

### The Pulp or Residue.

Now we find it profitable to raise those great pulpy sacks of water called mangel-wurzels, simply for cattle feed. It has been over and over again demonstrated that German sugar-beets produce fully as much digestible and nutritious food to the acre as mangels, and yet the latter are such an attractive crop that we keep on raising them. If we could take them to the mill and have them nicely pulped for nothing, and be well paid into the bargain—the miller paying for the privilege, and returning to us the whole amount of nutritive matter in the beets—we would not hesitate long, but set about arranging for raising the roots, and having cattle enough to consume the pulp. This is, as I understand it, exactly what beet-sugar production offers to the Northern, and especially Eastern farmers. It takes this form, however—the sugar mill buys the beets and the beef-feeder buys the pulp. When the beet-grower and the beef-feeder are the same person, then the above proposition is realized, namely, the sugar-mill pays the farmer for the privilege of pulping, and he gets his own product returned, less sugar. The only reason why a sugar-mill in any good farming community is not sure to be a success, is, that so few people have found out how much more profitable it is to raise roots than corn for feeding purposes. Every year more and more roots are raised, and the principal value of mangels is to make root-raising popular, and to introduce the sugar-beet as a general farm crop.

### Mangels as a Crop.

I am hardly willing to cast the slur upon mangels which might be implied from what I have written; they have several characteristics which make them favorites, and probably this will always be the case. The fact that they are enormously bulky and heavy, in proportion to the nutriment they contain, is overlooked by the farmer in his joy at harvesting such noble crops. Sugar beets are set deeply in the soil. Mangels grow largely upon the surface, and may be harvested without digging, plowing, or any trouble but loading into wagons. This, with me, has made all the difference between saving the crop in good order, and having it frosted.

The enormous quantities of roots which a sugar mill must have to extract the sugar from, in order to do a profitable business, makes it necessary that beet growing should be very general throughout any district, before sugar production will pay. This great production of beets necessitates the feeding of a great many cattle, hence more manure, more crops of all kinds, and a higher grade of farming in all respects.

### "Rubber Floor Wipers" for the Dairy.

There is an article called the "window wiper," which is coming into very general use in the cities. It is a strip of vulcanized rubber, about an eighth of an inch thick or less, fastened upon the edge of a flat piece of wood, and projecting from it as an edge, as seen in the engraving. This is used to clean windows, and being wiped over wet glass leaves it clean and dry. The effect of a similar use of the wiper, or of a stronger one adapted to the purpose, upon wet floors, is to sweep and wipe the floor, leaving it clean and nearly dry, much better and more rapidly than any mop or broom, or both combined can do. In fact, in dairies and kitchens, when once tried, it becomes almost indispensable, and upon cement floors where water can be freely used, it is efficient in its action, both cleansing and drying the floor very rapidly.

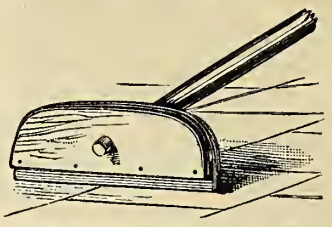


Fig. 3.—DAIRY FLOOR-WIPER.

## Butter Production East vs. West.

A recent study of the New York butter markets has revealed some interesting facts that possibly may be of value to dairymen. The fact that butter is lower now than for some years past, is doubtless due to the general depreciation in values; but the apparent falling off in the demand for the higher grades of the "gilt edge" of the eastern dairies must be ascribed to other causes. Dealers in fancy butter tell us that where a few years ago they had difficulty in obtaining as much "Philadelphia butter" as they wanted, now they are continually being solicited for orders. There is no actual falling off in the demand; on the contrary, there is a decided increase, as the number of people who require good butter is constantly growing. The lower prices are due to the large number of dairies engaged in the manufacture of "gilt edge" butter, but especially to the recent rapid improvement in western butter. People will no longer pay 75 cents to $1.00 per pound for the fancy brands, when they can get nearly as good from the West at the price of ordinary eastern butter. It is rather a puzzle to the eastern farmer, that his western competitor can pay the freights for so long distances and still undersell him in his own market; but it is this very matter of freight that makes the difference. Most good dairymen feed considerable quantities of corn-meal for the production of first-class butter in paying amounts; but the eastern farmer, as a rule, feeds western corn, paying the freight on it all the way from its distant harvest fields. The western dairyman saves this freight, which is 25 to 50 per cent of the price paid by his eastern competitors. In other words, the western dairyman only pays freight on one pound of butter, instead of on ten to fifteen pounds of corn, thus enabling him to sell his butter that much cheaper than those who pay freight on the corn, to say nothing of the differences in the value of land and other expenses. This feeding of corn for butter production by the western farmer is also a source of profit in that it removes no fertility from the soil, but increases its productiveness and permits growing still larger crops of corn to be converted into butter at a continually advancing profit. Previous to the feeding of cattle, and butter production, the western corn grower had little use for corn-stalks or other coarse fodder; now he converts them into butter and beef, so that, in comparison with the past practice, the products from them are clear profit, and can be sold at a low price.

The dollar-a-pound prices have been very deceptive, and led to much dissatisfaction on the part of producers, but when the method of obtaining them is known, the gloss wears off from the picture, and the gilt from the butter. Take one noted dairy as an illustration of the methods of most of this class. The owner, by a very great outlay, had got his farm into splendid condition, some single acres costing many hundred dollars for their reclamation; then he purchased the best imported stock, paying, it is stated, $15,000 for a bull. These animals, of course, took the first prize at the "Centennial" and other prominent cattle shows. A

leading agricultural weekly was employed to give the farm a grand send-off in a Supplement, of which it is said there were 50,000 extra copies distributed, mostly to wealthy New York families. When the butter was ready to be put upon the market, 3 one-half pound packages were given at intervals to a great number of leading families. In addition to this skillful advertising, the farm was made prominent in every way possible; by excursions and feasting of city friends, of Aldermen and other notables, and by a splendidly illustrated magazine article. At the farm every obtainable means is employed for the making of the best butter; yet, aside from this, it was literally forced upon a certain class of people who are willing to pay almost any price for style. And in this case they do pay 50 cents a pound for style only; for, without any disparagement to the product, we know that about as good butter is every day sold in the markets for 40 cts., 50 cts., and 60 cts. per pound, though under less pretentious circumstances and claims. The latter brands are, however, *probably sold at as large a profit.*

It is now quite definitely settled, that, aside from exceptional cases, "gilt edge" butter is not an attainable or profitable product. Barring this, then the question at hand is, first-class eastern against the same quality of western butter. To the westerner we say, go on in the same way and do as much better as you can. The eastern dairyman, we advise to raise as much of the grain he feeds as possible; to improve his machinery, that is, his cows, so that it will turn out the largest possible yield; to study the methods by which his competitors beat him, and then to go and do likewise.

## Bands for Corn Shocks.

A subscriber asks for a method of using wire for binding corn shocks. As the preparation of these

Fig. 1.

Fig. 2.

bands is necessarily a work of the leisure season, we now give a few hints on the subject. There is no cheaper or more durable material than wire, and No. 12 annealed galvanized wire will probably answer this purpose better than any other. The bands should be about 5 feet long. The fastenings may be made by twisting a loop at each end, and using a wire hook (fig. 1), or by making a loop at one end, and having a small cross-bar of wood at the other, as in fig. 2. Another form of fastening is shown at fig. 3; this double hook is made of hard wood, and is fastened to the band as shown

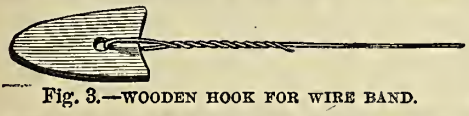


Fig. 3.—WOODEN HOOK FOR WIRE BAND.

Fig. 4.—ROPE BAND WITH WIRE LOOP.

in the engraving. An ingenious person may hit upon a number of modifications of this plan. Cord bands, made of hemp or cocoa-nut fiber, will be found very useful. These may be fastened very readily, by attaching to one end a wire loop, made as is shown at fig. 4, knotting the other end and drawing the knotted end through the loop, when it will be held firmly and the band secured; or a plain ring of wire or a small bar of wood may be tied to one end of the cord, and the other end passed around this, and secured by a few turns around the tightened band. These are given as suggestions only, and will doubtless set the inventive genius of many sharp boys in operation to devise other methods, which if improvements, we shall be happy to receive and publish for the benfit of our readers.

## Another Good Word for the Boys,

FROM A CLERGYMAN CULTIVATOR.

The question has often been discussed, "*How to Keep the Boys on the Farm?*" The "Danbury News" man had his joke as usual, and finished thus: "We hope our farmers are just as anxious as they appear to be, to keep their boys on the farm; *but they don't seem to take any definite action.*" I am not much of a farmer, yet I can speak to this point definitely. I am a Clergyman, but find it adds to my comfort to cultivate an acre of land, and two other lots besides. I have three sons working with me, and they are the most enthusiastic workers I ever saw anywhere. If they persevere, they cannot fail to be rich men. Their ages respectively are 15, 13, and 12 years. Now the "definite action" I have taken, is this:

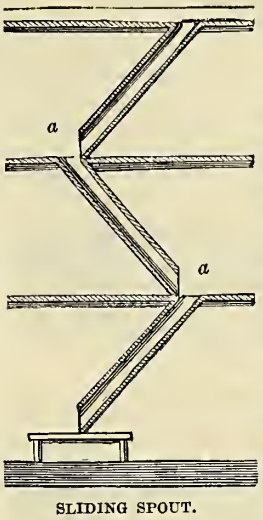
I bought Peter Henderson's "Gardening for Profit," two years ago, and tried to put its instructions into practice, working in our vegetable gardens with my boys. Then I took the *American Agriculturist*, which now lies contantly on my table. Then I bought Henderson's "Floriculture;" then his "Gardening for Pleasure;" then Roe's "Play and Profit in My Garden." Next I saw among the advertisements in the *American Agriculturist*, mention of the catalogues of books and pamphlets on rural affairs. With what a relish I read the contents of certain books, all the while comparing the prices of the books with my empty pocket-book! Nevertheless, I contrived to buy the above books, and also "Four Acres Enough." I saw "Prize Essay on the Potato," sent for it; then "How to Raise Cabbages;" also Bliss's "Prizes for Potato Culture," which my boys and I read and referred to constantly, with a great desire to grow potatoes like those who had received the prizes. *We didn't though, alas!* Besides, I had Bommer's "Method of Making Manure," which I have tried to put in practice and succeeded tolerably well. At last, I said to my boys: "See here, boys; I don't care for money, and will make a bargain with you. You may have half the money we make in the garden, and of the potatoes which we shall plant, the boy that raises the most from twelve rows, shall have a silver watch costing $16." The youngest is under the impression that if he is not far behind the eldest in the quantity from his rows, that he may get a watch too. I may mention another thing which works very well. It is this: I am boss, and they know it; but I am never arbitrary. They always see my reason for doing anything, and at once acquiesce in my judgment. A part of my method is that we frequently consult together. I listen to their suggestions, and often they will suggest the very plan in my own mind. But, if we happen to differ, I show them my reasons, after which they agree to my plan with promptitude and cheerfulness. Then they are always at liberty to rest when they please. I often say, "Now boys, take a rest," and they have frequently replied, "We are not tired Pa, but if *you* are, go and rest." What do you think I do? Why, I grin, and go and rest awhile! Now, these things I have done, besides the moral training they receive as my sons. And I believe that all farmers may well do something similar by way of encouragement, and not wait until they are about to die, and then leave their farms to their children, when they can retain them no longer. Let our farmers treat their sons like sons, and not like slaves; give them a share in the proceeds, as well as in the work and responsibility, and I believe that in nine cases out of ten, the boys could not be easily tempted away from the parental homestead.

J. D., *Berwick, Columbia Co., Pa.*

**City Sewage for Manuring Land.**—In our foreign correspondence last summer, reference was made to the Gennevilliers Plain, near Paris. We learn from our foreign exchanges that the success of this experiment is now assured. One-third of the sewage of Paris—one of the largest cities of the world—is used on 2,000 acres of market-gardens on this plain. The farmers are unanimous in their praise of the system, their crops having been increased in many cases nearly five-fold. The flowers raised there are nearly perfect; the vegetables are wholesome, and the health of the people living among the market-gardens is as good as the average.

## Sliding Spout for a Barn or Mill,

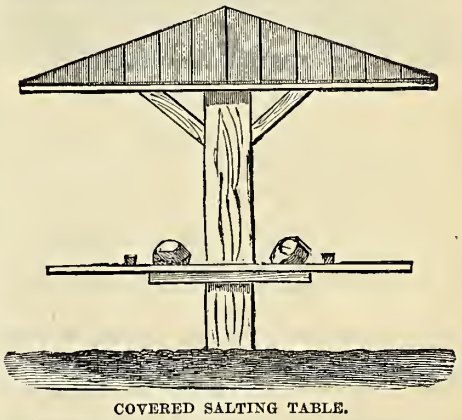
A spout through which bags of grain or feed may be sent from one floor to another, in barns or grist mills, is represented in the accompanying engraving. This will be found very useful for other purposes than the one mentioned, and may be readily made to serve as a ventilating trunk as well. It consists of a wooden spout about 2 feet square, made as shown in the engraving, and passing at each turn from one floor to another. A bag of grain or feed dropped in at the top, will slide from floor to floor until it reaches the table at the bottom. The openings *a*, *a*, are closed by doors which may be shut down across the spout, when it is required to deliver the bags upon any intermediate floor. This spout is necessarily used in connection with a hoisting apparatus or an elevator, by which the grain or feed is raised to an upper floor. In high barns provided with a hoist and a sliding spout of this kind, it will generally be found convenient to store the grain upon the top floor where it will be well ventilated, and may be made free from vermin.




SLIDING SPOUT.

## A Salting Table.

To supply salt to sheep and cattle, a table, such as shown in section in the engraving, may be used. A stout post is set in the ground, and two cross-pieces of plank are spiked to it a foot or so up, and boards laid upon the cross-pieces to form a table—four, six, or eight-sided as desired. A light roof of slabs or bark is secured to the top of the post. A small supply of coarse salt, or a few lumps of rock



COVERED SALTING TABLE.

salt may be kept on the table, and prevented from falling off by cleats. Cattle are not so likely to fight over the salt when they can reach it as they desire, and there is room for several at the table.

**Encouraging to Cattle-Men.**—Mention was recently made in these columns of the law passed by the British Parliament concerning the importation of animals into that country. This law, which went into effect on Jan. 1st, allows the landing of live cattle at only six ports, and these to be slaughtered at the port of debarkation within ten days after landing, from any country, with the exception that cattle from Sweden, Norway, Denmark, Spain, Portugal, and the United States are exempt from compulsory quarantine or slaughter, as dangerous diseases are not common in those countries. As

this country is much the largest producer of any of the favored list, the effect will be greatly to the advantage of American cattle raisers and exporters, and with our immense resources we can defy competition from any other country. Last year the number of live cattle shipped from our principal Atlantic sea-ports averaged over 2,500 head per week, and under present conditions the prospect is good for a very great increase of the whole business.

## Stone-Boats.

There are many uses for what are known as stone-boats besides hauling stone. One of these, and not the least by any means, is to carry plows, harrows, and tools to and from the fields, and as this work will soon be at hand, stone-boats might now be prepared, while there is leisure. There may be one stone-boat for each team, and one to spare, and it will frequently happen that all will be in

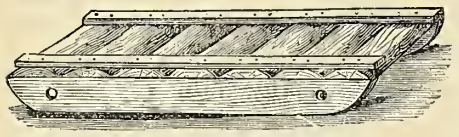


Fig. 1.—A SLAB STONE-BOAT.

use. The simplest one can be made in a short time with no other tools than an axe and an auger. This is shown at fig. 1, and consists of two runners made

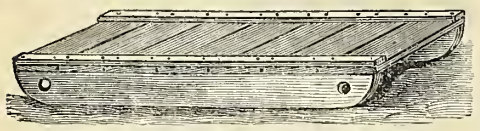


Fig. 2.—STONE-BOAT MADE OF PLANK.

of round oak sticks, about 8 feet long, and split and peeled, to which cross-pieces, 3 feet long, are fastened by means of pins driven through and wedged

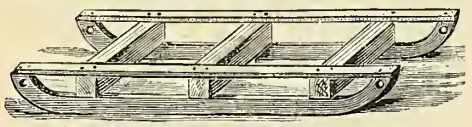


Fig. 3.—A SLED FRAME STONE-BOAT.

at each end. At fig. 2 is shown one made of plank; the runners are sawed out in the required shape, about 8 inches wide or less, and planks are spiked

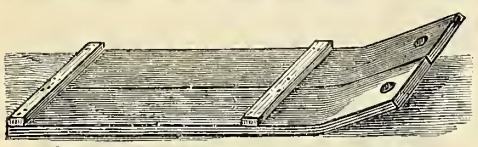
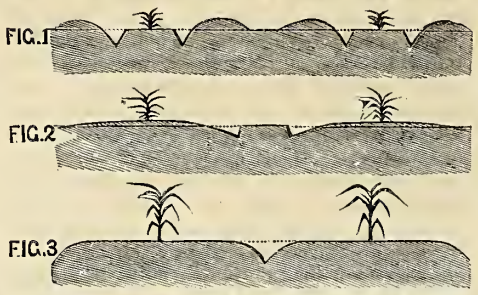


Fig. 4.—STONE-BOAT OF SAWED PLANK.

across; side-pieces are to be spiked above the plank, both to hold them down and prevent a load from slipping off on a rough road. At fig. 3 is represented a frame of a boat hewed out of split timber or plank, with beams and rives made similarly to those of a sled. This is made to run either way. At fig. 4 is the common form of stone-boat planks sawed out of a log, with the front ends turned up. These planks may also be easily hewn from logs with axe and broadaxe without sawing.

## Corn and Fodder Culture in Virginia.

Our correspondent, Mr. Edw. Miller, of Chesterfield Co., Va., sends us the following account of the methods employed in the culture of corn for grain and fodder in that section:—Corn and corn-fodder form a considerable portion of the food of all kinds of live-stock here. The land in many localities is well adapted to this crop; some fields, meadow lands, that have lain idle since the war, now produce 100 bushels per acre without manure, the stalks growing 18 feet high, while the "hill land" yields from 8 to 15 bushels. In preparing for the seed, we break ground early in March, the planting being done toward the end of April. We "drop the corn according to the fertility of the soil;" on high land, in rows 4 feet apart, the hills 3 feet apart in the row; on fertile low lands, the rows are 3 to 3½ feet apart, with 2 feet between the hills. Two kernels only are put in each hill, and when the plants are about 8 inches high the poorest one is removed, leaving each stalk growing by itself. The ordinary custom here is to plant much further apart. Just before thinning we run a single plow




FIRST, SECOND AND THIRD CULTIVATION OF CORN.

each side of and close to the row, throwing the soil away from the plants. A few days later this earth is thrown back upon the rows by plowing in the opposite direction. Later still, when the weeds get troublesome, the plow is run through a third time; the engravings, figs. 1, 2, and 3, indicate the appearance of the land after each plowing, respectively. It is sometimes necessary, also, to afterwards run a three-toothed harrow or cultivator between the rows to keep the weeds down and loosen the soil. I have found that extra labor in killing all the weeds does not pay in the crop returned; neither has it paid me, as a rule, to use other fertilizers than those made on the farm. Ashes and hen-dung prove to be an excellent manure. [These two substances contain all the elements of plant-food, such as are also contained in good commercial fertilizers, but the supply is limited, and many Virginia farmers use the latter, and find the practice profitable, especially after the home resources of manure have been exhausted.—EDS.]

As the corn approaches maturity, and when the leaves are getting browned by the sun, the tops are cut, and the leaves "pulled." The tops are cut off one leaf above the ear, and placed in small heaps by the armful. (I find my pruning-knife to be an efficient implement for this purpose.) Toward night these scattered bundles are set up in "hacks," butts downward, each one 3 to 4 feet in diameter, and tied about 18 inches from the top with a corn-stalk withe. The fodder stands in these "hacks" until sufficiently cured to be stacked, and nothing but a long rain storm will injure it; 8 to 10 days of fair weather cures it nicely. My stacks are built near the stables in the following manner: A pine pole, about 12 to 14 feet long, is erected, its lower end stuck in the ground; 4 braces, set 2 feet from the butt, and nailed to the pole about 4 feet up, help support it, and provide ventilation for the stack; see fig. 5. The tops are set against these braces, packed firmly, butts down, until a circle 9 feet across is filled, and are held in place until the stack is completed, by tying a rope around the whole as tight as it can be pulled. Then we place more tops upon this foundation, a man standing on

Fig. 4.—COMPLETED STACK OF CORN-FODDER.

the stack to pack them closely, laying the butts to the pole, and taking care that the tassel ends project over the lower part of the stack; and so on until within 18 inches of the top, when a well tied cap is put over the pole, and pulled down snugly upon the stack. A stack built in this way is proof against rain and snow as long as it stands. I built three of these last year (1877), and fed from them, taking the fodder from the base, until only about 3 armfuls were left of the last one. The fodder was fresh and nice to the last, and in better condition than when stored in a barn. Fig. 4 shows the finished stack, and fig. 5 a section of the same.

The leaves remaining on the stalks after the tops are cut, we pull off by hand, bundling them as we work, and hanging the bundles by the tie (3 or 4 leaves of the bundle) to the nearest corn-stalk. Here the bundles hang 4 to 6 days to cure; though if rain threatens before the fodder is cured, it is hurried off to the barns, as a wetting after it is wilted renders it almost worthless. In the barns it is stored loosely on top of the mows to prevent its getting musty. This leaf-fodder can be stored in the barns safely, while the heavy top-fodder soon becomes musty, unless it has become thoroughly dry by long exposure to the out-door air....After the stalks turn yellow, and the corn is ripe, the ears are picked, drawn to the house, shucked (husked),

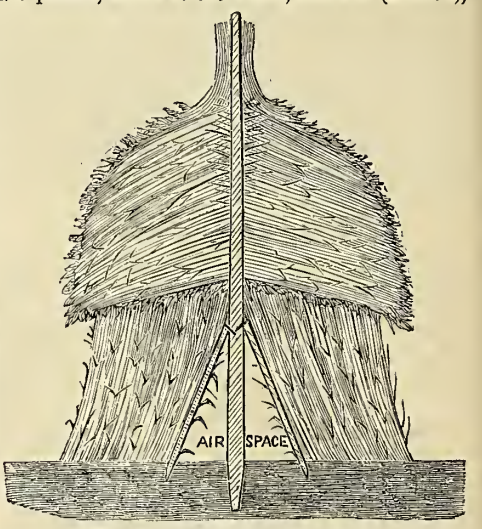



Fig. 5.—SECTION OF FIGURE 4.

and stored in the rat-proof corn-crib, described last month. The corn is shelled as wanted for meal, but is fed whole, on the cob, to cattle, horses, and pigs. ..In my first years of farming here I would have given much for such a description as the above of corn culture in the South. And, judging from the rapidly increasing population of these States, that there are many others seeking the same knowledge, I have written this for their benefit.

**Where our Grain and Fertility Go.**—Of the 42,182,102 hundred weight of grain imported into Great Britain during the nine months ending Oct. 1, 1878, nearly sixty per cent came from the United States. This is a grand market, it is true, and has apparently added much to our wealth. But in reckoning up the millions of dollars brought into the country from this source, let us not forget what it has cost. Have we a full equivalent for the departed fertility of the millions of acres of grain land of Ohio, Illinois, and others of our once great grain producing States? What has become of that fertility? It has gone out in these same cargoes of wheat that figure up so beautifully in the columns of the commercial papers. But what is to become of the golden eggs when we sell the goose that laid them? We do not wish to be classed as croakers; but when we see the wheat-yield of a section drop from an average of 25 bushels to the acre down to 10 bushels per acre, and the farmers crying to the government to help them by new laws on finance, the time has come when the cause of agricultural depression should be pointed out and a remedy suggested as we have several times tried to do, by showing that we should pay more attention to cattle feeding and meat production, thus consuming the crops on the land. And this can be done without lessening the grain product; indeed, as was found from the "wheat reports" published last

month, cattle-raising in connection with grain-growing will greatly increase the yield of wheat and corn, greatly to the pecuniary advantage of the farmer. This course was the means of placing English and French farming so far ahead of ours in proportionate products, and if generally adopted here, as the present and prospective demand for cattle for exportation permits, it will do as much for American agriculture as it has done for that of Europe.

## Ice Houses and Ice without Houses.

A very good illustration of the utility of a free interchange of ideas, came to us in the arrival of the English mail early in January—delayed by adverse storms. Upon opening the "Gardener's Chronicle," of date Dec. 28th, we found several designs for ice-houses, ice-wells, and other contrivances for storing iee employed in England, one or two of which we thought might be useful to American readers, and made a mental memorandum to reproduee them. Turning next to "The Garden," another London journal of the same date, we saw that it had found in our account of some ice-houses in this country, published in the *American Agriculturist* in November last, sufficient of interest to induce it to copy the article with its engravings (giving full credit of course), for the benefit of its readers. Here was one English journal giving its readers American notions about ice-houses, and another English journal, of the same date, giving English uotions which we propose to present to *our* readers. While in the large operations of cutting and storing the ice crop, this country is far in advance of any other, the great and constant demaud for the product, corresponding with the almost certain adequate supply, gives to the ice business a permanent character in this country which it has not in England. In that country, the commercial supply comes mainly from Norway. Not every winter in England allows a supply of ice to be stored, hence the arrangements for collecting and preserving it are of a much less permanent character than with us. In many cases in England, the ice is stored in ice-wells, which are much after the manner of the old style of ice-house in use with us 30 or 40 years ago—the ice being stored below the surface of the ground, a method sometimes followed now, but only practicable where perfect drainage can be secured. Ice-houses above ground are coming more into use in England, and some of their methods may be adopted by us. Figures 1, 2, and 3, show au ice-house that may be built with very little outlay. Figure 1, gives the ground plan; a center-post, *a*, is set up to extend 15 feet above the ground level; around this is set a row of posts, *b*, 9 feet high and 2 feet apart, to form a circle 15 feet in diameter; outside of this row, and 4 feet distant from it, is set another row of posts, *c*; these are 5 feet high, and we assume, 2 feet apart, although the article does not say so. A doorway is boarded up at *d*, and the space between the two rows of posts is packed firmly with straw. A sectional view of the house is given in fig. 2, and a perspective view is shown at fig. 3. This is a very unsatisfactory account, as all the description beyond what we have given is; "*C* is a view of the roof, which is formed of well-prepared wheat or rye straw, 4 feet thick"—roofing with straw being so common in that country that it probably was not thought worth while to give the method of making it. No further details as to drainage, ventilation, packing the ice, etc., are supplied, and we only call attention to it to show how simple a structure may be used to store ice. Still simpler is that shown in fig. 4. In England, when they have an unexpectedly good crop of ice, the blocks are gathered, stacked up in some favorable place, and covered with a thick layer of straw. In that cool climate such stores of ice frequently last the season through, and in this country such a stack might often be made to help out the regular supply. Figure 4 shows one of these temporary store-houses, built against a bank. The ice is shown at *A*. The out wall *B*, is of "fern," but straw would answer

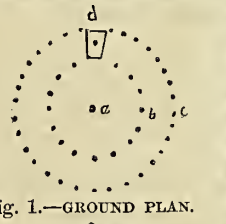


Fig. 1.—GROUND PLAN.

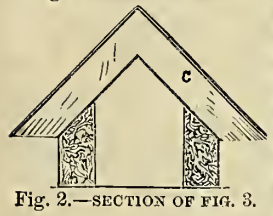


Fig. 2.—SECTION OF FIG. 3.

Fig. 3.—COMPLETE HOUSE.

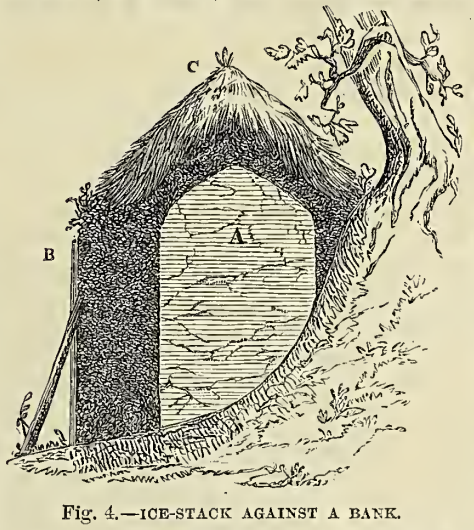


Fig. 4.—ICE-STACK AGAINST A BANK.

equally well, held in place by boards and braces, as shown at *B*. The stack of ice is covered by a little straw, then 18 inches of fern, and the thatched roof, *C*, is put over the whole. The article, which is exceedingly meagre in details, suggests that "an ice-house of this kind answers perfectly when placed on an incline so that the water may naturally drain away." To which we add, if it does not naturally drain away, make it do so artificially. It also says: "Shade is desirable but not essential." In this country it is both desirable and essential. Our reference to the article is on account of its suggestions to those who have made no preparations for storing ice, and would secure a stock. A large body of ice, on a well drained place, covered, even in the rudest manner, with a thick layer of non-conducting materials—and in this country straw, or marsh or "swale" hay will answer every purpose of the English "fern"—will keep almost, if not quite as well as in a more permanent structure. It is not too late to put these hints into practice, for it has more than once happened that our chief ice crop has been gathered in March.

## Setting Fence Posts.

The heaving of fence posts is caused by the lifting of the frozen surface of the ground, which carries the post with it, because firmly attached to the earth by the frost. When the ground settles after a thaw the post remains in its elevated position. In a few

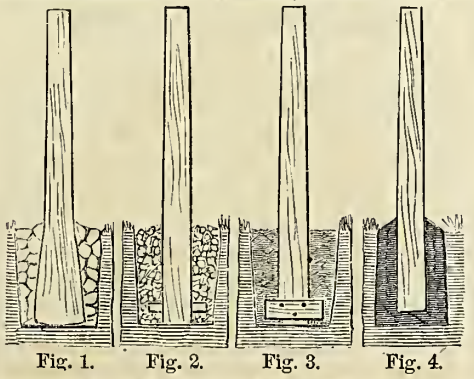


Fig. 1. Fig. 2. Fig. 3. Fig. 4.

years the fence is all out of shape. To prevent this, the holes may be dug larger than usual, and filled in around the posts with stones—the bottom of the post being left larger than the upper portion, as in fig. 1. Or a hole may be made through the post near the bottom, and a piece of wood put through it as at fig. 2; or a piece of wood may be nailed to the side of the post, as in fig. 3, and the hole filled with stones or earth. A very solid and durable manner of setting, is to fill around the post with lime-mortar and sand, or for an expensive fence, with hydraulic cement and sand, making the post holes a little larger at the bottom than the top (see fig. 4). The cement should be raised about the foot of the post so as to shed water and keep the post dry.

## A Home-made Root Cutter.

A farmer with whom 10 or 12 dollars is a serious item, will hesitate about expending that amount on a root cutter, to save an hour or two daily through the winter—a season when time is plentiful. We recently gave an illustration of a simple machine for slicing roots; this has given rise to inquiries for a root pulper which will divide the roots still finer. A pulper may be made as easily as the slicer referred to. All that is required is a box with sloping sides, as shown at fig. 3, aud set firmly upon four stout spreading legs, and a properly fitted roller inside armed with cutters. The roller is shown at fig. 1. It is made of a piece of seasoned oak or maple logs; a square headed pin is driven into one end to which a grindstone handle may be fitted, and a round woodeu or iron pin provided at the other end. The teeth may be of iron, ½-inch square, the cutting end flattened out and sharpened, and the other rounded and screw-threaded,

Figs. 1 and 2.

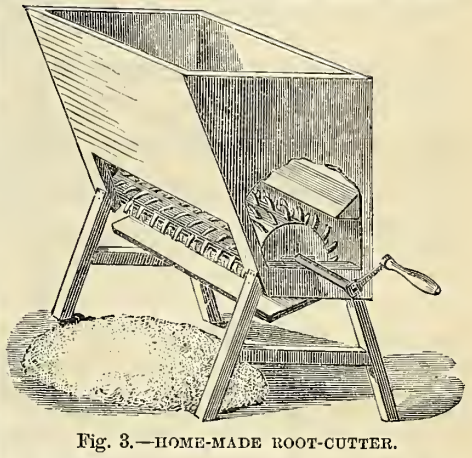


Fig. 3.—HOME-MADE ROOT-CUTTER.

so that they may be screwed into the roller. If the roller is 18 inches long, the teeth should be 3 inches apart, in 6 or 7 rows, and so placed that no two of them come in line with each other. They project about two inches from the roller, and are set into this, sloping a little forwards so as to give a forcible cutting motion with the exercise of the least power. The front of the box is cut away sufficiently to permit the shreds of the roots to fall out and into a basket or box placed to receive them. The legs are firmly fastened with carriage bolts. The whole cash outlay for this useful machine need not be more than two dollars, and two days' labor of any man or boy who can handle tools.

## Movable Fences.

Portable fences may be used extensively upon nearly every farm, so as to reduce the cost of fencing, and the amouut of land that would be occupied by permanent fences. Cultivated fields need no fences; they are only required around pastures and the boundaries of the farm. The pasture fences may be all of a temporary character, so that they can be moved as the pasture is shifted from field to field. Various kinds of portable fences have been previously described in the *American Agriculturist*, but new ideas occur and many improvements are made through new experience. The cheapest kind of fence is the hurdle, made either

of saplings or strips of lumber. These are self-sustaining, or supported by stakes driven into the ground, to which they are fastened by wire. A bench on which hurdles are constructed, is shown

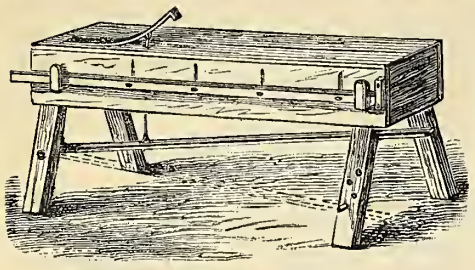


Fig. 1.—BENCH FOR MAKING HURDLES.

at fig. 1: the clamp or vice at the top is made of a piece of spring steel with a toothed claw at the end; this is brought down, when in use, by the bar seen below the bench, and it holds the strip of sapling

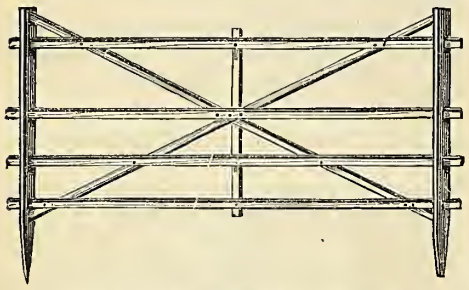


Fig. 2.—A STRONGLY BUILT HURDLE.

while it is flattened or shaved down on each side to a proper thickness. For boring the stakes, the guide at the front of the bench is used; the stake is supported in the two rests, and the holes are

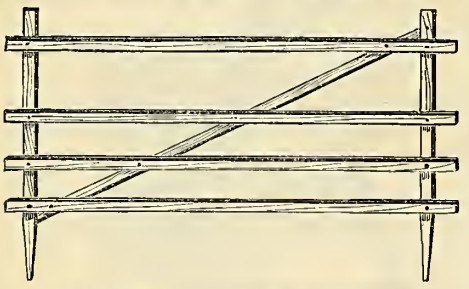


Fig. 3.—SIMPLEST FORM OF HURDLE.

bored opposite the slats made in front. The hurdle thus made is shown at fig, 2; the cross bars and braces are fastened by means of wrought nails, clenched or riveted on the opposite side. Hurdles may be made by nailing the bars to the stakes, or by fastening them with carriage bolts, instead of boring; in this case, light timber may be employed. To set these hurdles, holes are made in the ground with a pointed iron bar, and the stakes are driven down with a mallet or heavy hammer.

Fig. 4.—MANNER OF SETTING FIGURE 3.

Another kind of hurdle is represented at fig. 3. In this, flattened bars are nailed to upright flattened posts, with the ends of the bars projecting, so that

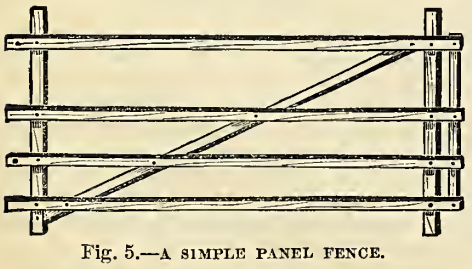


Fig. 5.—A SIMPLE PANEL FENCE.

the hurdles may be set up as in fig. 4, supported by two stakes at each corner, these being wired together at the top. This makes a strong fence not liable to be blown over by high winds. Panels of 4 or 6 inch strips, as shown at fig. 5, will make a serviceable fence. These can be locked together by passing the open ends through those that are closed by the extra strip shown at the right of the engraving. The panels may be fastened by wires passed through the holes shown in the open ends, or by a single stake driven in the outside corners of the panels, or flexible withes may be used to fasten the corners. Any one of these fences is cheap, easily made, and so far as we are aware they are entirely free from any claim of the ubiquitous patent agent.

## Notes on Wheat and Corn in Alabama.

LETTER FROM ILIAS FINCH, SHELBY CO., ALA.

I read your request for reports of wheat-growing from different localities, last year; but as we are not a wheat-growing people, and this not a wheat-growing section, I thought it useless for me to make any statement in the matter. But on looking over the table in the February number of the *American Agriculturist*, I find that I might have made as favorable a report as many of them. I came from Northern New York, and about two years ago I purchased a farm here for $5,300. It had formerly been producing about 10 to 12 bushels of wheat, and 12 to 15 bushels of corn per acre. When I introduced my large plows, and people saw me turning over the soil at the rate of 9 to 10 inches deep, and 12 to 16 in. wide at a furrow, they all, in astonishment, declared that I was surely destroying my land; that I could not raise anything on the sub-soil thus turned on top, and that the sun would burn all the substance out of the soil. I harrowed the ground thoroughly, twice before sowing; sowed 26 acres of wheat about the middle of November, after soaking the seed in a strong solution of salt and rolling it in lime, allowing one bushel of seed per acre, then harrowed the ground twice afterwards. In June, I harvested 837 bushels of good wheat, or at the rate of about 32⅕ bushels per acre. No fertilizer was applied except what was on the ground, in the shape of weeds etc., turned under in plowing. It was sowed broad-cast.

My corn ground gave equally satisfactory results. From 7 acres I harvested 50 bushels per acre, and my whole corn crop of 40 acres averaged 42½ bushels per acre. Last year was a poor wheat year; I sowed the same amount in the same manner, and harvested only 500 bushels. My corn crop was equally good with the year before, though I was not so particular in keeping an account of it. I harvested 3,000 bushels. The mode of cultivation throughout the South, so far as I have seen, is very slovenly. Generally, the old primitive plow and hoe are still adhered to—the latter being the heavier of the two. The plow is the old "bull tongue," consisting of a beam attached to an upright handle, drawn by one mule or "steer," merely scratching the ground to a depth of one-half an inch to two inches deep, just stirring the surface, so that a heavy rain washes away the loose soil, as the land is mostly rolling. I am glad, however, to see that many here are introducing improved implements, and some labor-saving machinery.

## Poultry-Keeping in a Village.

Mr. "J. V. C.," of Haddonfield, N. J., noticing the communication from a city in the January number, on poultry-keeping, sends us the following account of his experience:—On leaving the city, one of my first concerns, after getting well settled in this village, was to obtain a few fowls, and having read a good deal about the different breeds, I fixed upon the Light Brahmas. I found them good layers, and good mothers; but we soon tired of them for the table, the meat being coarse and somewhat stringy. I then procured eggs of my neighbors, and soon had a mixture of several different kinds—smaller, more compact, and the meat more tender and solid. I have adhered to this plan for several years, and have good healthy fowls, never having had cholera, gapes, or any other epidemic among them. We winter about 20, and start off in the spring with some 60 chicks, more or less. We are scarcely ever without eggs, though less plentiful, of course, at some seasons than at others. Hens must have rest, and their moulting seasons when they do not lay for a short time. I feed principally, corn and wheat screenings, with usually a hot mess in the middle of the day, consisting of cracked corn, middlings, bran, pretty well seasoned with red pepper, which we raise for the purpose, and scraps from the table. On this they thrive well, and look fine. The space allowed them is a lot of about 45 feet square, on which grow two apple trees, and on which is their house for shelter, with arrangements for laying, etc. The following is my account for the year just ended:

| | | |
|---|---|---|
| Eggs, 112 dozen, of which we sold 82 dozen, and consumed for home use and for setting 24 dozen, at the average price, 23 cents | | $25.76 |
| Fowls for table use, 33 at 50c | | 16.50 |
| Stock on hand, 18 at 50c | | 9.00 |
| Manure, say | | 5.00 |
| Cost of food | $21.88 | $56.26 |
| Profits | | $34.38 |

The manure in the city would be of no account; but in a garden it is very valuable, and I am of the opinion that I have put it at a lower value than it is really worth to me. I might add to the cost a trifle for keeping the house in repair, care, etc.; but these items are scarcely worth noticing.

## Among the Iron Mines of Michigan.

EDITORIAL CORRESPONDENCE.

Turn to the map of Northern Michigan, or the upper Peninsula, draw with your pencil a small circle, having the city of Ishpeming as the center, and you will embrace the Marquette Iron ranges which, it is claimed, produce nearly one-third of all the iron made in the United States. Thirty-four

LAKE SUPERIOR IRON REGION.

years ago (1845), and fully two hundred years after the existence of copper became known in the Peninsula, Man-je-ki-jik, an Indian chief, led a party of government surveyors to an iron mountain standing in an unbroken forest, fourteen miles back from Indian Town, now Marquette, on the south shore of Lake Superior. The explorers subsequently came near losing the prize by wrongly locating it on the government map. Owners of adjacent government permits naturally became much excited, and began to dig for iron. Judge of their disappointment, and of the chagrin of the discoverers when it was found that the iron mountain was situated twelve miles further north. The latter did not consume much time in having the proper correction made on the Government Sectional Map. A large pine stump marks the spot, to which Man-je-ki-jik's finger pointed, and from which very many tons of ore have since been taken. Companies were immediately organized at Jackson, Mich., and other points, to develop the Lake Superior mines. One of the three survivors of the little band which founded the present beautiful city of Marquette, tells an entertaining story of their journey. They left Michigan proper, for Lake Superior, in an old worthless steamer, the Tecumseh. A bread riot, an

insurrection, and other cheerful experiences were encountered before they reached Sault Ste Marie.

**"Give Physic to the Dogs."**

At one time the boat sunk to her upper deck, and was only saved from going to the bottom by a queer character who had been the butt of their jokes. Naturally they ceased calling him "Old Saleratus" after he had proved himself a skillful ship carpenter, and saved their wretched lives. Reaching the present site of Marquette, they erected a log building, under the lead of a carpenter from Boston, and named it the Revere House, after the hotel of that name in the New England capital. Cholera and typhoid fever scourged the settlement, and when the physician, Dr. Rogers, a brother of the sculptor of the same name, and since a prominent practitioner in Chicago, was prostrated, the narrator became head nurse. We quote from his own story, as told in a private lecture to a few Marquette friends and neighbors: "Dr. Rogers was very low indeed, unable to lisp a word, and to this fact I attribute the recovery of himself and associates, for as I knew nothing of medicines, I discarded them altogether. I commenced rubbing and bathing the patients, and Mrs. W. furnishing suitable food, the result was that in two weeks they were all convalescent. Dr Rogers often said afterwards, 'if I could have told the fool what medicine to give, he would have killed us all.'" In 1847, two years after the existence of iron became known to the whites, the first forge was constructed, not far from where Ishpeming now stands, and on the 18th of February, 1848, the first Lake Superior iron was made. Now over fifty mines, and twenty-one blast furnaces are in operation, and a million tons of ore are annually shipped from this region. There are five varieties of this ore, viz., soft hematite, specular hematite, black oxide, flag ore, and silicious ore. The ores lie in foothills, or ranges from one to five hundred feet high, and are covered with layers of earth and rock. As before stated, the main iron region is in Marquette Co., and within a range six miles wide.

**The Menomonee Iron Region.**

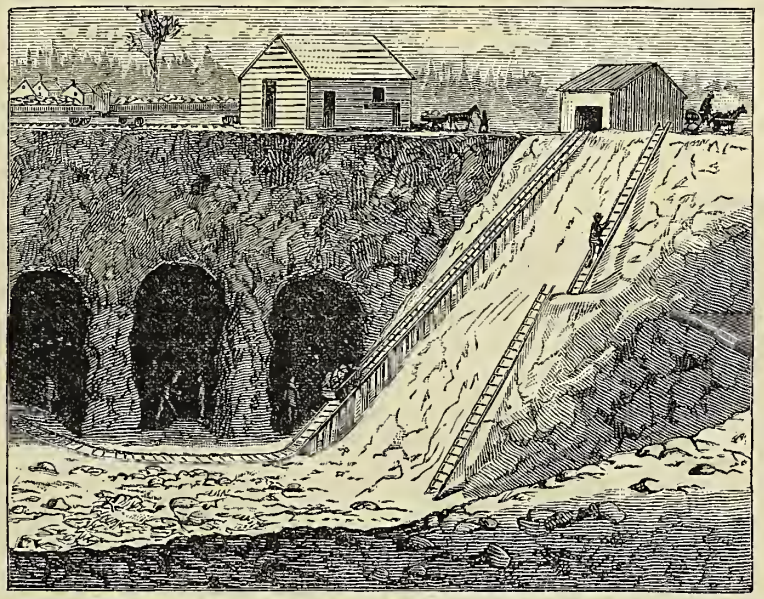
The second, or Menomonee iron range, being a comparatively new field, lies in the southern portion of Marquette and the northern portion of Menomonee Counties. The center of this region is fifty miles north of the Village of Menomonee, and fifty-five miles south-west from Marquette. The Chicago and North Western Railroad Company has run a branch from the main line to one of the mines, and it is expected that the Menomonee region will soon be actively developed. When this is done, it is estimated that the inexhaustible ores of the Marquette and the Menomonee regions will together be fully ample to meet all the iron requirements of the United States. The Menomonee is a wild, picturesque country, with dense forests full of deer and other game, and swiftly flowing rivers and smaller streams abounding in trout and other fish. It is an attractive section for those who are fond of spending the summer and autumn months in the woods, where they can forget the cares of business in successful hunting and fishing.

**Escanaba.**

Prior to the construction of the railroad from Green Bay to Ishpeming, the ore was mostly transported to Marquette, and thence over Lake Superior, round through the St. Mary's Ship Canal to Cleveland, Ohio, and other distributing points. Now the ore is brought by rail directly down to Escanaba and Lake Michigan, thereby securing a vast saving of time and distance in transportation. The track from Escanaba to Ishpeming being a portion of the Peninsula branch of the Chicago and North Western, has an elevation of 850 feet, runs in a straight line for many miles, and lies on one of the finest road beds in the country. This road, or corporation, prior to its consolidation with the Chicago and North Western, possessed land grants amounting to 700,000 acres. Another grant of 100,000 acres was subsequently given by the Legislature. About 100,000 acres have been sold. The land sells at from $3.00 to $7.00 per acre. The ore trains are carried much of the way on the down grade by their own momentum. During 1878 they landed between five hundred and six hundred thousand tons of ore at Escanaba, where it is worth about $4.50 per ton. The two docks through which the ore is transferred at Escanaba from the cars to the vessels, cost nearly half a million dollars, and are among the largest in the world. The larger of the two is 1,300 feet long, 37 feet wide, 32 feet high, and has pockets sufficiently capacious to hold 20,000 tons of ore. Escanaba, which is situated opposite the Bay de Noquet, has a population of about three thousand, and is becoming a point of great importance. The water views about here are very picturesque.

**Sam'l J. Tilden's Iron Mine.**

Returning to the Marquette iron center, we are able to count 20 different mines within a radius of eight miles around Ishpeming, which city has been built within a short time. Nine years ago, where there are now regularly laid out streets, and many fine buildings, there was nothing but a marsh. As one mine after another has been developed, population has been drawn hither. Many of the principal business men are from the New England States. The miners, who comprise the bulk of the population, are mainly from Sweden and other European countries, and make excellent citizens. They support schools and churches, and are generally free from the vices which prevail in some mining regions. The mines nearest to Ishpeming are the New York, Lake Superior, Barnum, and the Cleveland. The New York mine is better known through the country as the Tilden mine, Mr. Sam'l J. Tilden being now almost the sole owner. There is an interesting story connected with the opening of this mine. Nearly twenty years ago, a Mr. A. R. Harlow was the head clerk for the adjoining Cleveland mine. On adjusting the taxes one year he discovered that forty acres on which the Company had been paying taxes as a part of its property did not belong to the Company. He purchased this strip of land for a small sum, and afterward leased it for a period of years to the New York Iron Mining Company, organized in 1865, with Mr. Tilden at its head. Subsequently Mr. W. L. Wetmore assumed the management of the mine, Mr. Tilden furnishing the funds. Differences arose between them, were carried into the Courts, and are still unadjusted.



THE TILDEN IRON MINE IN THE LAKE SUPERIOR IRON REGION.

**A Tour Underground.**

We descended the ladders to the mine and groped about the dark passages, under the guide of a miner, who seemed to have a morbid relish for designating spots where various workmen had been killed at different times. "Here," said he, as we entered one chamber about twenty feet high, "a man was killed the other day by a piece of rock falling from the ceiling and striking him on the head." On our inquiring if there was danger of any other pieces dropping, he replied: "Oh, yes, they are liable to drop at any time; we all have to take our chances." After this cheerful announcement, we did not tarry very long in that quarter. But there was a sad story of some poor fellow's death connected with every division of the mine we entered. I have visited mines in Pennsylvania and elsewhere, but there was a feeling of insecurity and danger here which I had not before experienced. Still there is a fascination about the life for the miners, and they rarely exchange it for other avocations. As we entered one tram-way, we could hear the sounds of the miners' blows far in the bowels of the earth. Following the sounds, we crawled through a very narrow passage for a long distance, and emerged into an opening where the miners were at work upon a new vein of ore, and preparing blasts. Water was trickling down the sides of the passage, the air was cold and damp, the lights feebly flickered, the half-dozen workmen begrimed and bronzed with dirt, presented an unnatural appearance, and we were very glad to retrace our steps and ascend to the surface of the earth. The large chambers of the mine from which the ore has already been taken, are divided by strong pillars of ore, which have been left to support the overhanging walls. The veins extending eastward have been pretty well worked down to the line of the Cleveland mine. There is believed, however, to be an abundance of ore extending westward under the surface on which the buildings connected with the mine now stand. Ten thousand tons of ore were taken out of the mine during the first year it was opened (1864), and the aggregate product up to the present time has been nearly a million of tons.

**How $40,000 was Made.**

While the adjoining mines sold the ore produced during the past year, Mr. Tilden held on to his for better prices. It is computed that the advance in prices so far has made a difference to him of forty thousand dollars. Three engines are used in hoisting the ore. Formerly seventy-five horses were employed. Now the work is almost entirely performed by machinery. Formerly over 150 men were engaged about the mines. The number is now considerably less than a hundred. They work from seven o'clock A. M. until six o'clock P. M., and average all the way from $1.25 to $1.75 per day for their labors. Some months they make more than this; as, for example, in last September, when their daily earnings averaged $1.96. All the work is done by contract. A man takes a contract to get out the ore, say at $1.80 a ton. The Company supplies the steam-power for hoisting the ore; the contractor bears all the other expenses. To one gang of men he pays so much for "drilling," and to another so much for "filling." The ordinary prices are $1.15 a ton for drilling, and 15 cents for filling. It is possible to break between three hundred and four hundred tons of ore and rock at a single blast.

**Concerning Nitro-Glycerine.**

Powder, dynamite, and nitro-glycerine are all employed in the mines about Ishpeming. Owing to the hardness of the rock, nitro-glycerine is almost wholly used at the Tilden Mine. Furthermore, it breaks the rock into much smaller pieces than does powder. This dangerous material does not, as is commonly supposed, explode from contact with fire, but from concussion; you can run a red-hot poker through a can of nitro-glycerine without exploding it. So we were assured by a mine Superintendent. I would not advise any one to try the experiment. The miners become very careless in handling it, and our guide did not add any to the pleasure of our trip through the mine, by stopping as he did to pick up and examine for our benefit, half-empty cans of nitro-glycerine. These cans hold about two quarts each. Not long ago, while a considerable quantity was being transferred from a

baggage-car, close by here, one of the hands, as is supposed, accidently dropped one of the cans. The explosion which followed was terrific; engine and baggage-car were blown into atoms; pieces of the car and the men's watches were found a mile away. The ceiling of a house a mile and a half distant, was ruined, and a huge hole in the ground, marks the spot where the fatal explosion took place. Of course none of the half-a-dozen men employed on the cars escaped. Thirty different pieces of their bodies were collected and buried; such calamities as this, make the miners more circumspect, but they soon relapse into their accustomed careless ways. When a blast is to take place, a whistle is blown, and the men come above the ground. A former secretary of the company thought this an unnecessary waste of time, until on one occasion, a huge mass of rock, lifted by the nitro-glycerine from below, buried itself in the ground close by his feet. There is, so to speak, a natural antagonism between the miners and the mine owners, the former maintaining that the latter do not make sufficient provision for the protection and preservation of their lives. In the elections last November, the miners of both political parties supported one of the candidates for district attorney, because he had won a suit against a company for injuries suffered by one of the miners, and had, therefore, to this extent, determined the question that the mine-owners were responsible for the lives of the miners.

**Heavy Products of Ore.**

The Cleveland Mine, which joins the Tilden or New York Mine on the east, was opened in 1852, and has produced over sixteen hundred thousand gross tons of ore up to the present time; the ore is hoisted by machinery. The Lake Superior Mine, which we next visited, close by, was opened in 1857, is owned mainly by Boston parties, employs some 250 men, and has produced two million gross tons of ore; the main shaft runs down an incline of 250 feet, with galleries and chambers on each side. One's head fairly swims as he looks down into the vast pits or excavations, and see the miners running nimbly about on the ladders like so many squirrels; a single misstep would be fatal to them. While they were taking dinner, a year ago, an embankment on the south side fell, which, at any other time of day, must have crushed a large number of men. About fifty miners have been killed at one time and another in the Lake Superior Mine. The Barnum Mine, called after the Connecticut Senator of the same name, who is largely interested in it, lies south of the Superior, and employs 150 men; some of its veins have been worked out. Bores, however, made to the depth of five hundred feet, by the Diamond Drill, have established the fact that this mine has valuable veins of ore extending directly under the city of Ishpeming. The Jackson Mine, where the first iron ore in the region was discovered (1846), has been in active operation twenty-two years, and produced over eighteen hundred thousand gross tons of ore. There are other mines in this Marquette range which will repay a visit. Then one, if he has time, should make a tour through the mines of the Menomouee region. He should likewise consult Hon. A. P. Swineford, Editor of the "Marquette Mining Journal," whose knowledge regarding the mines has given him a wide reputation. After the depression which has prevailed since the panic of 1873, the iron men of the Peninsula are very hopeful and buoyant over the present improving condition of affairs.

## No-horn Cattle—The Jamestowns.

BY A. W. CHEEVER, SHELDONVILLE, MASS.

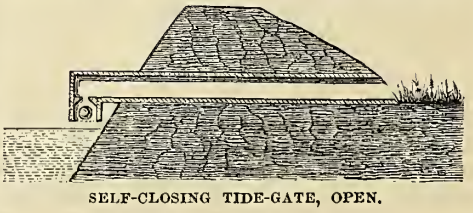
[The interest manifested in the Scotch breeds of hornless cattle, will render timely the following account of a family of this class of cattle, which Mr. Cheever, of the "New England Farmer," well known as a breeder of these animals, has kindly furnished us.—EDS.]—It is about ten years since I commenced with the "No-horns," and I now have about eighteen. The origin of my herd is from the best no-horned bulls I could obtain (of local breeding) upon my best selected native cows. My first bull, named "Col. Stone," out of regard for the interest that gentleman had taken in polled cattle, was a grade, and sired several good cows. The next, "St. Patrick," (see engraving), was bred by Col. Stone, of Dedham, and was an excellent animal. His dam, "Ruby," lived to be 14 or 15 years old, without ever being dry. "Ruby" was mated several times with pure Jersey bulls of the best stock, yet very seldom bore any but polled calves. After "St. Patrick" I have used no bulls other than his calves, so that my stock is now becoming quite uniform in appearance, though the Jersey blood is sometimes manifest in the color of some animals. These Dedham polled cattle bear the local name of "Jamestowns," and are so highly esteemed in the vicinity, that the Norfolk Agricultural Society has authorized committees to award prizes to them as a distinct breed, although they are hardly yet entitled to the name of pure-breds, as they have frequently been crossed with the Jersey and Ayrshire stock. The origin of the "Jamestowns," as near as I can learn, is as follows: In 1847, Capt. R. B. Forbes went to Ireland, as Commander of the U. S. ship Jamestown, with a cargo of provisions for the people who were suffering from the famine due to the failure of the potato crop. On his return, the Lord Lieutenant of Ireland, wishing to confer a favor upon the commander, made him a present of a "Suffolk" heifer, which proved to be a remarkably deep milker, giving in her flow 26 quarts, beer measure, of the richest milk. Capt. Forbes sold the heifer to John Marland, of Andover, Mass., giving the proceeds to the Irish Charity fund, and she was afterwards owned by John D. Bates, of Swampscott, and by a Mr. Osborne, of Danvers. She had few heifer calves, and one owned by Wallace Thaxter, of Boston, proved a superior dairy cow. Several of her bull calves were raised and left their impress upon the dairy stock in the vicinity of Boston. In 1854 this cow dropped a bull calf which was secured by the late Dr. Eben Wight, of Dedham, and named "Jamestown" after the noble ship that brought his mother to this country. He proved himself as remarkable in his progeny as that of his kind on his mother's side. His sire was "Beverly," a thoroughbred Jersey, out of "Flora," by the "First Prize Bull" at the Royal Agricultural Show in Jersey. "Flora" was imported by Mr. Thomas Motley, and proved a leading representative of that popular dairy stock, having made sixteen pounds of butter per week.

The "Jamestowns" are notable for their gentleness. When the bull "Jamestown" was five years old, a boy of the same age could manage him with safety. The animals are very hardy, are hearty feeders, and hold out in their milk, often through the entire year. My own herd has been bred with more regard for quality than quantity of milk, and for several years past has averaged 200 to 250 lbs. of butter per cow. In extra favorable seasons, the quantity has exceeded the above amount. As dairy cows, I presume the "Jamestowns" may be excelled by the best families of pure Jerseys, but their larger size, their ease of fattening when dry, together with their excellent dispositions, make them the most desirable dairy animals, in my estimation, that I have ever met. I can put my whole herd into a yard so small that they can hardly turn around, and yet feel perfectly free from anxiety or fear of injury to the animals. The bull I am now keeping, though past three years old, has never worn a ring, is tied in the stall with cows, and is as easily and safely handled as a six weeks' calf. [Mr. Cheever sells most of his butter in the Boston market at 85 cents per pound, nearly or quite equaling that from the best Jersey herds. We understand that Mr. C. has none of these cattle for sale. An interesting description of the three distinct breeds of the hornless cattle of Great Britain, including the "Suffolk" mentioned above, is given on page 93, and an article discussing their adaptability to this country was published in the *American Agriculturist* for last Dec., which it will be well for interested parties to refer to.—EDS.]

JAMESTOWN BULL "ST. PATRICK."—*Owned at "Pine Hedge" Farm, Sheldonville, Mass.*

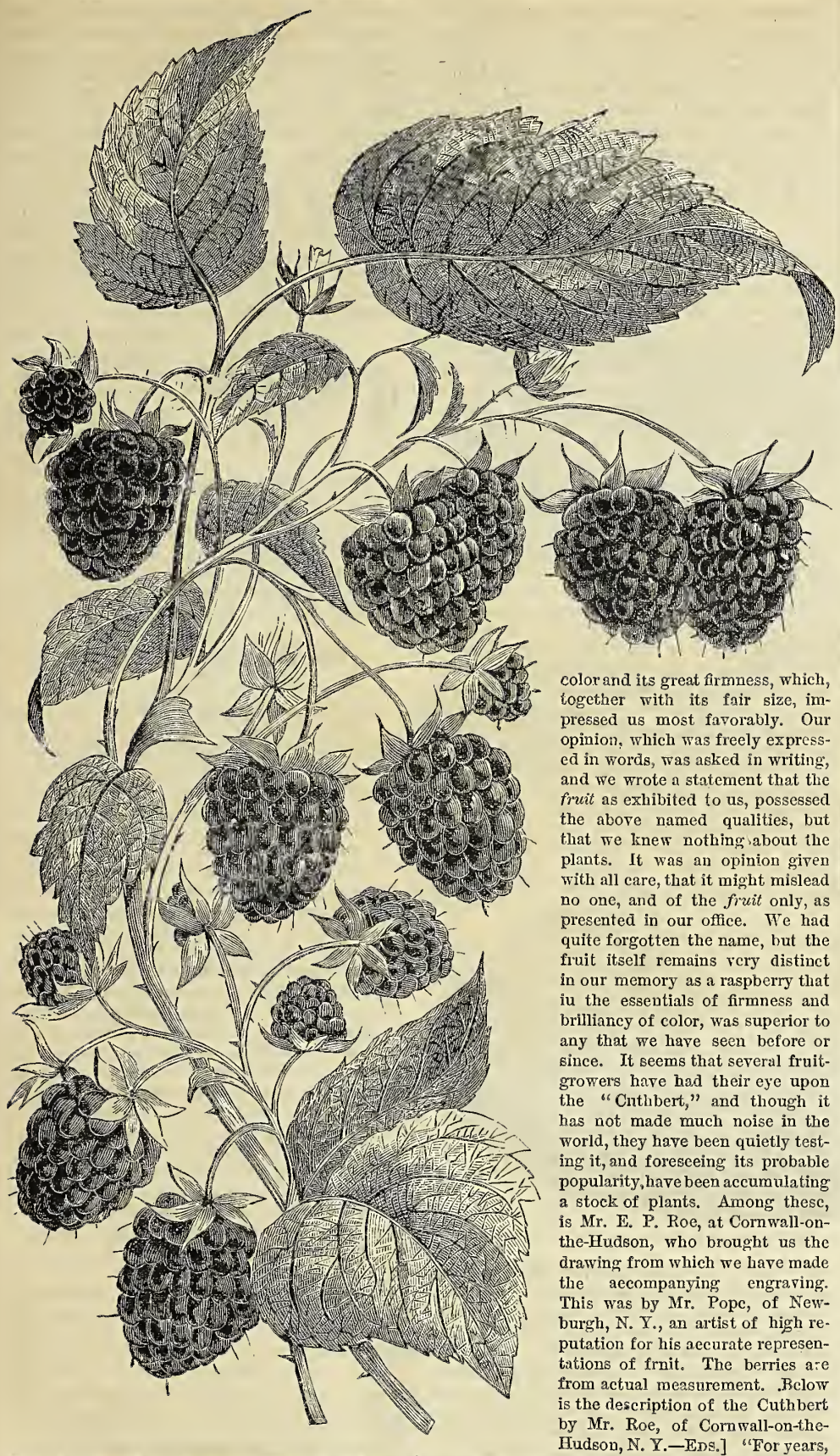
## A Self Closing Tide Gate.

Among the many different forms of self-acting sluices for tidal drains, few operate satisfactorily. Many of them become stiff, and acting only by their own weight, do not prevent access of water until the tide is so high as to press forcibly on the gates. An engraving is here given, showing a method of constructing a perfectly tight gate, which will not permit any water to pass in from the outside under any circumstances, and will act when the difference of level is so small as one inch. It consists of a



SELF-CLOSING TIDE-GATE, OPEN.

flume of the usual kind, having a round opening with beveled edge in the bottom at the outside end, with guides made as indicated. A wooden ball is turned to fit the round opening accurately, in which it is confined by a grating of iron or wooden bars. When the tide rises, the ball is floated into the round opening by the water, and closes it tightly.



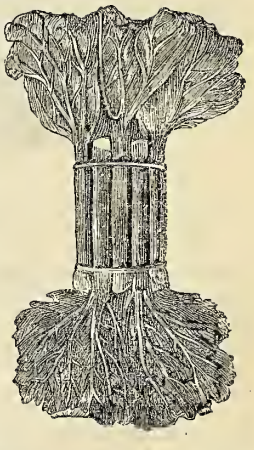
## Raspberries for Market.—The Cuthbert.

BY E. P. ROE, CORNWALL-ON-THE-HUDSON, N. Y.

[Some time last fall we received a note from a well known nursery in New Jersey, asking if we still adhered to our opinion of the "Cuthbert Raspberry" as given in the circular of——, naming a dealer in small fruits. We could not recollect any such variety as the "Cuthbert," much less an "opinion," and asked to see the "circular" in question. When that came to hand, we saw how the case stood. Several years ago, a gentleman, whose name we had quite forgotten, called upon us, introduced by a friend well known in the horticultural world, with a very generous basket of raspberries. The fruit was remarkable for its brilliant color and its great firmness, which, together with its fair size, impressed us most favorably. Our opinion, which was freely expressed in words, was asked in writing, and we wrote a statement that the *fruit* as exhibited to us, possessed the above named qualities, but that we knew nothing about the plants. It was an opinion given with all care, that it might mislead no one, and of the *fruit* only, as presented in our office. We had quite forgotten the name, but the fruit itself remains very distinct in our memory as a raspberry that in the essentials of firmness and brilliancy of color, was superior to any that we have seen before or since. It seems that several fruit-growers have had their eye upon the "Cuthbert," and though it has not made much noise in the world, they have been quietly testing it, and foreseeing its probable popularity, have been accumulating a stock of plants. Among these, is Mr. E. P. Roe, at Cornwall-on-the-Hudson, who brought us the drawing from which we have made the accompanying engraving. This was by Mr. Pope, of Newburgh, N. Y., an artist of high reputation for his accurate representations of fruit. The berries are from actual measurement. Below is the description of the Cuthbert by Mr. Roe, of Cornwall-on-the-Hudson, N. Y.—EDS.] "For years, one of the chief needs in fruit culture, has been a raspberry that combined a sufficient number of good qualities to make it profitable and acceptable throughout the regions in which raspberries are grown. New kinds are constantly introduced, but nothing hitherto has appeared to 'fill the entire bill.' I was in hopes the 'Pride of the Hudson' would be the successful candidate, but time, that tests all things, proves it must be content with standing high up among the choice varieties having foreign blood. For the garden and table, I ask nothing better in all localities where the Franconia or Antwerp varieties succeed. But we need a raspberry that will grow North and South, East and West, on light soils and heavy, moist and dry, and at the same time produce a profitable crop of large, firm, bright-colored, good flavored berries. This is asking an immense deal of one variety. Does the "Cuthbert" meet this demand? I can not yet say with certainty that it does, but from all I can learn, it comes nearer doing so than any other kind yet introduced. Like all true worth it has steadily made its own way. It has never been 'pushed' or heralded to any extent to my knowledge, but wherever set out and given a chance to take hold of any kind of soil, sand or clay, it went at once to work producing canes and fruit in a manner that 'meant business.' Those who have it, want more of it, and those who see the fruit, ask for plants. I have seen it growing in a fruit garden in Newburgh, N. Y., where I had a chance of comparing it with nearly all the leading foreign and native kinds, and it surpassed them all in vigor of growth, and, the proprietor affirms, in productiveness also. In Newburgh it never had or needed winter protection. I also saw it in New Jersey sand, and in a large field where it had precisely the same treatment that was given to almost all the raspberries now in cultivation, the 'Cuthberts' could be distinguished as far as the field could be seen. It so far exceeded everything else as to excite my astonishment, but I was informed that only the native vigor of the variety made the difference, and that the fruit was as fine as the canes. The gentleman who introduced this variety speaks of it as follows: 'I have been in possession of the 'Cuthbert' for the past seven or eight years, was the first to introduce it to the public, and my experience with it has been that the vines are very hardy, the most so of any raspberry of which I have any knowledge. It is a good bearer, keeps well, and when in good order may be shipped anywhere that a blackberry can be sent, and arrive in good condition. I can truly say I know of no weak point in it.' This raspberry originated near New York City, in the garden of a gentleman by the name of Cuthbert, and by him given to a well known horticulturist for more complete trial. Mr. Chas. Downing, who has seen the Cuthbert growing and fruiting near Newburgh, says of it: 'I consider it the most promising *market* raspberry before the public so far as yet tested. The fruit is large and very firm, and the plants are exceedingly productive and vigorous growers.'"

## Rhubarb in England—Forcing.

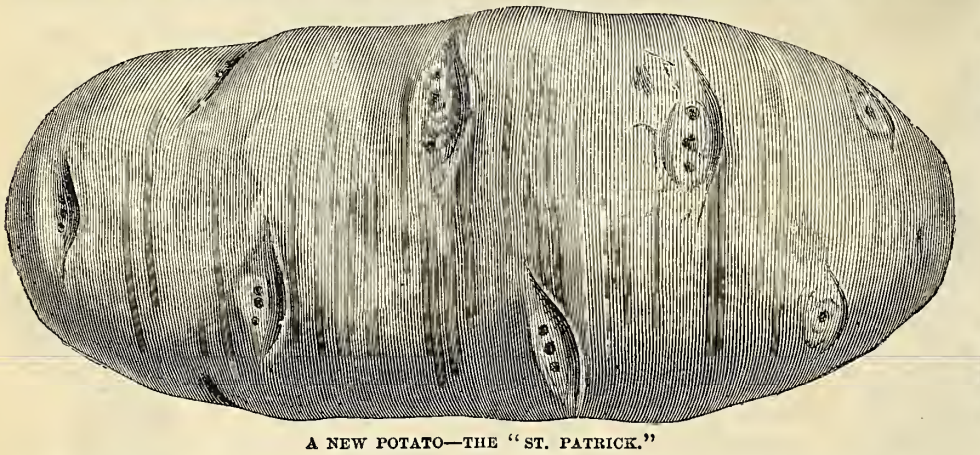
From the scarcity of apples and dried and canned fruit, so common with us, the English use rhubarb much more freely than we do. Forced Rhubarb — and we showed in an article by Peter Henderson, a few years ago, how easily it was forced— makes its appearance in London Markets by Christmas. The "Gardener's Chronicle," gives an engraving, which we here reproduce, showing how this forced rhubarb is done up for market. We give this as a hint to our market gardeners, as a great improvement on their awkward bundles with the leaf portion all at one end. A lot of rhubarb neatly done up in this form, would readily outsell the same quality put up in the usual slovenly bunches....Those who have a greenhouse can easily force rhubarb under the benches, and it may be readily done in a hot-bed; but those who have neither of these can force a moderate supply. It is better to have the roots dug in the fall, but if this was not done they may be taken up during a thaw, selecting those of medium size in preference to the very large. As the roots will be of no use afterwards, their spreading branches may be shortened somewhat to make them more compact. Place a few inches of soil in the bottom of a barrel, set the roots upon this,



packing them as closely as possible, work soil well into all the spaces between them, and cover them with a couple of inches; water if at all dry, and put on a close-fitting cover. The barrel is to be set in a place sufficiently warm to start the rhubarb into growth, 55° to 65° being sufficient. The cellar of a house heated by a furnace is an excellent place, but a corner in the kitchen, or wherever there is the requisite heat, will answer as well. The buds will soon push, and when the stalks are large enough may be pulled for use. Growing in the dark, the stalks will be white and very tender and crisp.

## A New Potato—"St. Patrick."

That new potatoes have ceased to be novelties, may be said without making a very bad "bull." The "Early Rose" was such a blessing, as it gave potato-growers new hope, coming as it did, with an assurance that the crop was not destined to utterly disappear, that for some few years after its advent new potatoes were regarded with special interest. "Early Rose" was good, but with that discontent which is at the bottom of all improvement, we at once looked for something better. It marked more than a step in advance, it was a long stride, and after that we were willing to make short steps, provided they all pointed forward. We never mention the "Early Rose," without a mental recognition of our great indebtedness to Mr. Breese, its originator, and hope that he may live long enough to receive the acknowledgement that is so justly his due. It is not a little gratifying to remember that we had a share, in not only making its great value known through the *American Agriculturist*, but also in sending the precious tuber to great numbers who would not otherwise have known it for several years. Following the "Early Rose," there came other new varieties, first a few, then tens and scores, until a new potato, instead of being a matter of great interest, came too frequently, and soon there was a deluge. At the present time, a new variety must be remarkable indeed to attract attention; numbers



A NEW POTATO—THE "ST. PATRICK."

of really excellent kinds, in the abundance of others equally good, have appeared during the past ten years, and have dropped out of sight—not because they were not really good, but because they were in no respects *better*, than others already in cultivation. So when a new one comes forward now, it must be compared with very high standards, and unless it can present some other claim than the mere fact that it is new, it stands a small chance. Therefore, when so experienced a cultivator as Peter Henderson tells us that in the "St. Patrick" he has found a variety that possess "in a high degree," "*all*" the important characters that he considers essential in "a faultless market potato," we feel sure that it must be worthy of trial, "St. Patrick," we are told, is a descendent of "Garnet Chili" and "Early Rose"—good stock indeed. The "Early Rose," being a seedling of "Garnet Chili," this is an illustration of the utility of a kind of "in and in" breeding that has been practised among animals with excellent results. The exterior appearance of the "St. Patrick," is given in the engraving; according to Mr. Henderson, it has a smooth white skin, a few shallow eyes, and cooking without hard core or hollow center, and unsurpassed in quality. The plant eminently hardy and prolific, with a vigorous growth and compact habit, maturing with the "Early Rose," with but few small tubers. "St. Patrick" originated with a prominent agriculturist of New England, who has raised hundreds of seedlings, this being the only one among the number that he has been willing to offer. The new variety starts with an excellent endorsement, and we shall watch for the results of its extended cultivation with much interest.

## The Currant Fruit-Worm.

If the insect enemies of the currant,— and gooseberry also, for the same insect usually attacks both,—are not increasing in number of kinds, they are rapidly becoming more wide-spread, and more numerous as individuals. The currant is too valuable a fruit to be made an uncertain one by reason of insects. Only a few years ago the caterpillars that destroyed the leaves, so called "Currant Worms," became so numerous that many gave up currant culture altogether. White Hellebore came to the rescue, and this pest is no longer dreaded by any one who deserves to have currants. Within the past ten years a caterpillar that attacks the fruit, has appeared in widely separated parts of the country; this has within a few years increased with great rapidity, and in some localities is now as serious a pest on currants and gooseberries, as the leaf-eating caterpillars were not long ago, threatening, if not arrested, to make the culture of these fruits, uncertain and unprofitable. This is no doubt a native insect, that has within a recent period found its way from the wild plants—where their presence, being of little consequence, was not noticed—to the plantations, where, finding food in abundance, its increase has been rapid. The insect was not known to entomologists, or at least was not described, until Doct. A. S. Packard gave a figure and description of it in his "Guide to the Study of Insects," in 1869, and the same year Prof. Riley added largely to its history, in his admirable Report on the Insects of Missouri. Inquiries received during the past year show that this is a case demanding prompt attention, and that growers of currants and gooseberries everywhere should be on the look out for the enemy, and make a combined effort to check its spread. The first step in operating against insects is to learn their habits; some of our letters show that the habits of this are far from being understood. The perfect insect is a little moth of the size shown in the engraving—from Packard. Its general color is a pale gray, with markings of darker color and of white. The moth appears in spring, lays its eggs on the young fruit or in the flower, and the young caterpillar or "worm," makes its way to the interior of the fruit. Its presence is first made known by the young fruit when partly grown turning prematurely red. When the bunch is examined, many of the berries will be found to be mere shells; the "worm," having eaten the contents of one, passes to another, lining its passage-way with silk, and thus many of the berries will be found to be hollow shells, joined together by these silken tubes. The insect is not usually discovered until the mischief is done; then efforts should be directed towards preventing future trouble, and here a knowledge of its habits comes in play. The caterpillar completes its growth by the end of June, drops from the fruit to the ground, and finding a hiding place under leaves, or any sheltering rubbish, spins its cocoon, a little dark brown affair, of the shape and size shown at the left hand in the engraving. It remains in this condition until the following spring. It will be seen that the habits of this insect are much in favor of the fruit grower, as it does not, like many, make its chrysalis in the ground, but on the surface, and remains in this exposed condition for nine months of the year. So soon as the presence of the "worm" is detected in the fruit, there should be a careful picking; the clusters are already spoiled, and if the caterpillars can be thus caught and destroyed before they leave the berries, there will be great gain. This is the proper time for a wholesale destruction, and the picking of the infested fruit will be labor well expended. Some will escape and form cocoons, and broods of chickens may be made useful in hunting for and devouring them. There is one other point of attack that is worth examining—the insect in its perfect or moth state. It is possible that when its habits are known, it may be trapped and destroyed.

CURRANT WORM, MOTH, AND CHRYSALIS.

## Tree Planting—The Ailanthus.

SECOND ARTICLE.

It was stated last month that we proposed to give a summary of Prof. C. S. Sargent's remarks on the Ailanthus given in a valuable paper on "Trees and Tree Planting;" this paper being published in the Report of the Mass. Board of Agriculture for 1877–'78, is not readily procurable, and we hope to do a good service to tree planters by presenting the essential facts there given in a form accessible to all. It is not to be understood that this and the former article are in any proper sense a republication of Prof. Sargent's paper, but a synopsis of its more essential portions. Last month we gave what relates to the Ailanthus as fuel. We now speak of the

**Great Value of the Ailanthus as Timber.**

The paper quotes the experiments made in the French dock-yard at Toulon, where it was tested as to its tenacity, or ability to resist a strain, in comparison with the timber of European Elm and Oak. The average of seven experiments showed that the Ailanthus broke with a weight of 72,186 lbs., while the elm in a similar number of trials yielded to 54,707 lbs., and the oak, in the average of 10 specimens, broke under a weight of 43,434 lbs. Evidence as to the value of Ailanthus timber in exposed situations, and as to its durability when set in the ground, is yet meagre, but the little that we have is favorable. We cited several years ago the testimony of Mr. McCullough, of Cincinnati, as to the durability of small second growth, as grape stakes, a use to which it seems well adapted. Of its value for interior work and for cabinet-making there can be no doubt, the wood possessing properties remarkable in so rapid-growing a tree. Prof. Sargent cites the case of a set of furniture made from Ailanthus-wood, in Providence, R. I. This furniture, which has been in use for some 20 years, is known to us, and we can confirm what he says of its solidity and beauty. The wood is at first a pale straw color, but grows somewhat darker with age, and takes a high polish; when cut to show the silver grain, it presents a satiny lustre that is very pleasing. The testimony of the mechanic who made the furniture referred to, is given by Prof. S., in which he states that in the matter of shrinking and warping he regards it "as superior to walnut and fully equal to mahogany." He praises the economical manner in which it cuts up, the readiness with which it seasons, the facility with which it may be worked, with no unpleasant odor in working it, freedom from any ill effects upon tools, and says: "When its merits are known, its market value would be fully equal, I should think, to that of the best walnut." From what we have seen of the wood we are quite sure

that Prof. Sargent is safe in saying: "For the treads of stairs, the floors of offices, mills, and other buildings, where constant use requires a hard, strong wood, it is probably superior to any of the woods commonly employed in such situations." There is one use for which its freedom from tendency to shrink will especially commend—*i. e.* interior finishings. Its warm color will make it very effective when used with both lighter and darker woods. It is a fashion—and fashion this time has sound sense at the bottom—to use wainscotings in houses much more than formerly. The ease with which Ailanthus timber may be produced, will allow those who live where other woods are not obtainable, to adopt this style of interior finish. The Ailanthus grows very rapidly when young, but later its increase in diameter is slow. One of the oldest, if not the oldest in the country, now 60 years old, has a girth of nine feet and four inches. The paper gives a few statistics of other trees; some that are 12 years old, measure three feet six inches in girth; these grew upon the slope of an old gravel pit, but made quite as good a growth as trees in richer soil, and the inference appears to be warranted that the Ailanthus grows about as rapidly in a poor soil as in a rich one—a matter of no little importance to tree planters. This paper makes out an excellent case for the Ailanthus; it grows rapidly, and on the poorest soils; it will grow in blowing sands and on the sea-coast, localities where few trees can live; its wood has a higher value as fuel than most of those in general use for burning; it has great strength; it is valuable where there is constant wear, and as a material for cabinet-work and interior finish it is in beauty and freedom from warping equal if not superior to more costly woods.

**The Propagation of the Ailanthus.**

In cultivated grounds, where for the most part the tree is out of place, it propagates too easily; seeds, having a broad wing, are carried to a distance by the wind, and young plants come up in all sorts of unwelcome places. This is of no consequence to the tree planter, any more than the trivial objection alluded to last month—the odor of its flowers. Seeds are to be had of the dealers in tree seeds, and will grow in almost any soil, giving the first year a stout little tree a foot or two high, and as large as one's finger. Whether it will be better to scatter the seeds broadcast, or to raise the young trees and transplant them, circumstances will determine. Where there are old trees, root cuttings may be made; every piece of root an inch long if put in the ground will soon make a tree. The northern limit at which the Ailanthus will be hardy is not settled, but Prof. S. thinks that a line from Boston to St. Louis will about indicate its northern boundary. He no doubt intended to say the *isothermal* line, as we know it to be hardy as far north as Michigan.

## The Scarlet Clematis.—(*Clematis coccinea*).

When the "*Revue Horticole*" appeared with a colored plate of a Clematis with bright scarlet flowers, and called it *Clematis Pitcheri*, we were not a little astonished. We had long cultivated Pitcher's Clematis (*Clematis Pitcheri*,) not only for its intrinsic beauty—for as a climber, with its large dark purple solitary flowers, it is a really handsome plant—but because it bore the name of one of the most courteous, genial gentlemen of the "Old School," (Doct. Zinas Pitcher, until his death the leading physician of Detroit), that it was ever our good fortune to meet. To have a plant thus endeared to us set aside by a new comer bearing the name, however brilliant it might be, was far from pleasant. The correctness of the "*Revue Horticole's*" plate was called in question by the "Gardener's Chronicle," whereupon came "The Garden," the editor of which is regarded as an authority on such plants, with a statement to the effect that *Clematis Pitcheri* was scarlet, for he saw the flowers of the first plant imported into England. Here was a nice muddle, and all about an American plant.—*Clematis Pitcheri* was originally described by Torrey and Gray in the "Flora of North America," with "purple" flowers. We collected in Texas a purple flowered *Clematis* which we labeled *C. Pitcheri*, and which passed under the eyes of both Torrey and Gray, without any hint that it was not correctly named. Then our specimen in the garden, with its large purple flowers, if it is not *C. Pitcheri*, what is it? Either we were wrong and our European friends right, or *vice versa*, and we looked up the matter. It seems that a scarlet flowered Clematis was first collected by Doct. James on Long's expedition, and was recorded as *C. Viorna*, variety *coccinea*, and has since been regarded as a scarlet variety of the well known *C. Viorna*, until the remarkable Mr. Buckley came across it and gave it the name of *C. Texensis*, though Doct. Englemann, regarding it as a species, had called it *C. coccinea*. Without going any further into the nomenclature, it appears this scarlet Texan Clematis has somehow reached Europe, and is known in both France and England, as *C. Pitcheri*, while it is here known only in botanical specimens. Whatever it may be, it is not *Clematis Pitcheri*. We here give an engraving showing the size and form of the flowers, from the large plate in "*Revue Horticole*," which represents them as bright scarlet. We are glad to say that we have got upon the track of the plant, through an intelligent correspondent in Texas, and expect to have it in cultivation the coming summer. Whatever the botanists may do with it, it promises to be a desirable plant for our gardens....Since the above was in type, we have been informed by Messrs. Woolson & Co., Passaic, N. J., that they have received from a Texan collector the roots of a scarlet Clematis, which is no doubt the plant under discussion.

THE SCARLET CLEMATIS.—(*Clematis coccinea.*)

# THE HOUSEHOLD.

☞ *For other Household Items see "Basket" pages.*

## Home Topics.

BY FAITH ROCHESTER.

**Let the Children Learn to Chew.**

Tobacco? Oh no, nor gum either, but bread and beef, and other wholesome food. In some families mastication almost seems one of the "lost arts." Parents and children and hired helpers sit down to the table, and there is a clatter of dishes and a noise of smacking and sipping, and all seem intent upon swallowing their food in the shortest possible time. Nearly every mouthful is washed down with some warm drink before it is half masticated. Those who eat in this manner, often find that almost everything disagrees with them which can not be soaked in the mouth or stomach with tea or coffee. I have often wondered why some persons can not eat raw ripe fruit without indigestion, when it has always been most wholesome for my own young children. But I have always taught them *how* to eat such things, carefully scraping out the soft pulp for the babies, and often cautioning them as they grew older to "chew it fine before swallowing." Unless skins of fruit are finely masticated, they ought never to be eaten at all; but persons who are not in the habit of chewing can not stop for that, and so they find that raw apples do not agree with them. Is not this the chief reason for the difficulty? No food should go into the stomach "in chunks," but light porous bread and cake, or food easily soaked into particles can be managed somehow by the stomach, when neglected by the teeth, though greatly to the detriment of digestion, as this neglect of mastication throws an unnecessary and improper amount of labor upon the stomach, and is apt to bring about some trouble with the digestive organs. Perhaps the chief difficulty which the stomach has in digesting food of this kind, arises from the lack of saliva mixed with the food, which takes place in thorough chewing. The saliva has constituents which produce important chemical changes upon starch, whether eaten in bread, potatoes, or other starchy food. One can discover this by chewing raw wheat for a few minutes; it will change from a sticky, starchy taste to a sweetness caused by the conversion of starch into sugar.

It is a pity for children to grow up without the habit of properly chewing their food; not only because it is injurious to health, but because they lose the best and finest pleasure of the sense of taste. Accustomed to "bolt" their food, nothing tastes good to them which is not highly flavored or spiced. Everything must be peppered or sugared unless already highly seasoned, in order to make some impression upon the nerves of taste, located in the mouth, as the food hurries through. While to persons accustomed to chew their food deliberately, the plainest forms of well-cooked, wholesome food afford great pleasure to the palate. Children should be encouraged to eat *without drinking*, in order that they may be led to moisten their food with saliva, thus preparing it for good digestion.

**Drinking at Meals.**

The habit of washing down the food interferes with the habit of thorough chewing. It also deluges the stomach with an unnecessary amount of fluid, at least in most cases, since those who drink at all while eating usually indulge the habit immoderately. The animal system requires water in order to carry on its various functions. This must be supplied by drinks, or by eating juicy or semi-fluid food. But only a moderate quantity of liquid should be taken with the food, and for those with good teeth no drinking at all is necessary. The stomach can not work upon the mass in-

troduced into it at one meal, until it has disposed of enough of its fluid contents to leave it in a sufficiently dense condition for kneading and churning, and stirring about by the strong muscles of that organ. Too much fluid improperly dilutes the gastric juice which the stomach mixes with the food in order to help its thorough digestion. If the fluid mixed with the food as it is swallowed be very cold, it farther retards digestion by lowering the temperature of the conteuts of the stomaeh below the working point, so that digestion ean not go forward until the body has sufficiently raised the temperature of the food in the stomach. With warm meals, a moderate amount of cold watcr (not ice-water) may produce no noticeable result, but the hearty cold water drinks had better be taken when the stomach is empty. Poured into a full stomach they often produce great diseomfort, and sometimes result in serious disease. Drinks with meals, especially for persons with defective teeth, had better be warm than very cold. Still, I think that if you teach your growing family to eat their food deliberately with no tumbler or other drinking vessel at all placed habitually beside their plates, so that they naturally learn to moisten the food well with nature's own preparation for that purpose—the saliva, which pours from the glands about the mouth with every motion of chewiug—the children will grow up healthier in all respeets for the good habit of deliberate and thorough chewing, and of drinking at proper times.

### The Inside Finishing of Houses.

I have just been turning again the pages of "Homes and How to Make Them." I like the author's ideas in regard to simplicity of design, in the finishings, or lack of straining for effect in ornamenting houses. As the most perfect style of dress is that which attracts the least attention, so the finishings of rooms should uot challenge notice and detract from their furnishings. Let there be as few dust-traps as possible. These are found in enormous Grecian window and door cornices, supported by huge carved consoles, in needless crooks and quirks, and uniutelligible mouldings. The author, a praetical architeet, declares that most of what is usually considered ornamental in sueh cases, is wholly incongruous with lath and plaster and floors of cheap boards. "Any great outlay of lahor or material on the casings of doors and windows, or the bases, when there is no other woodwork in the room, is surely out of plaee." He says that fine art in building does not imply fine work. Attend first to the size and position, and relative proportion of all the parts, and then see that sueh mouldings as may be needed are simple and graeeful, and you cannot go far wrong. The author admits the practical utility of paint and varnish, though he protests against the kiud of painting called "graining." He objects to all this attempt at deception, which is so common, and would not have us ashamed of pine doors if those are what we can best afford. They are well enough, until they proclaim themselves, by false graining, to be oak, black walnut, or mahogany. He thinks this is a part of that spirit of show which pervades our whole social structure, obtruding itself into every department of life. If we want to see the natural grain of wood, it does not necessarily follow that we must use hard wood. He speaks of black-walnut as much over-estimated, and praises the beauty of the grain of our common white-pine—"rarely used without having its natural beauty extinguished by three coats of paint." He also praises, for inside finishings, "the different kinds of ash, yellow-pine, butternut, white-wood, cherry, cedar, even hemlock and spruce in some situations. Whatever wood we use unpainted, several important points must be observed. It must be the best of its kind, seasoned to its inmost fibre, carefully worked and finally filled [with oil I suppose,] and rubbed until it wears a surface that is not liable to soil, is easily eleaned, resists the action of moisture, and will grow rieher with age." He does not object to staining the wood if you prefer a different shade. This does not conceal, but strengthens the natural shading, and it is honest and sometimes an economical expedient. "The cost is less than common painting, and the effect as much better than graining as nature's work is more perfect than ours."

### Floors and Carpets.

There is a strong protest offered, in different ways and from various sources, against our long established practice of making poor floors, with the design of keeping them covered with earpets stretehed and fitted to every part, and carefully tacked down. Carpets in daily use cannot be kept elean except by very frequent shaking and beating, and they do much toward corrupting the air by retaining impure gases, hiding the finest, most penetrating dust in their meshes and underneath them, and by giving off particles of fine wool into the atmosphere, with other dust, as they are swept or walked upon. There is a demand for better floors, not necessarily inlaid or mosaics, of different kinds of precious wood, but made double, of strong seasoned wood, that will not shrink or warp (spruce, however well seasoned, is almost sure to warp), and then earefully finished so as to be durable and easily cleaned. Carpeted floors seem a relief to the house-keeper when onee the earpets are procured and fitted to the rooms and tacked down, because they do not show the dirt as the bare floors do. But oh! when they do get full of dust! And when house-eleaning time comes, and they must be taken up and shaken and whipped as they well deserve! With warmly-made floors and large warm rugs, couldn't we do without these abominations even in winter. Certainly our rooms would be cooler and sweeter without them in summer. But in that ease we must take more pains with our floors, and we must have something better than the eommon unpainted ones. Oiled floors are better liked than those painted, even for kitchens. Women find that they can oil their floors themselves, and many a kitehen floor has, within a few years, been made comfortable and deeent in that way. Boiled linseed oil is used, and two or three coats are put on, one after another, as fast as they are dry. Floors of alternate boards of differeut kinds of wood are pretty for some rooms, and sometimes a border made in this way, with diagonal stripes, bordered by a straight board on each side, or wood of two kinds laid in checks or diamonds, is very satisfactory. These bordered rooms are especially designed for parlors, or rooms where a heavy bordered carpet or large rieh rug is intended to merely eover most of the floor, leaving a margin of about two feet around the edges—a carpet which ean often be carried out and shaken free from dust.

Oiled fioors do not ueed hard scrubbing, like unpainted fioors, but simply a good washing with warm (not hot) water, often changed as you go over it. Strong suds of course will gradually remove the oil with which you have carefully filled the pores. Grease spots do not have the same effeet as upon an uupainted or unoiled floor, which must be kept free from grease in order to look well, for now you have it greased all over; whatever grease gets on it now, that can uot be seraped or wiped up, may be thoroughly rubbed in.

### The Easiest Way to Make Graham Bread,

And perhaps the best way is to make loaves of graham. In the morning, take a part of your bread sponge, set over-night with yeast and fine flour, as usual, and stir this with graham as thick as you can conveniently with a strong spoon. Stir it well to make it all of an even consistency, and at the same time stir in a tablespoonful of sugar to a medium sized loaf. Do not knead it at all, but turn it, when thoroughly mixed with the spoon, into huttered bread pans, and let it rise until nearly doubled in size, then bake in a modcrate oven.

### Cockroaches.

Having mentioned these pests in former Topics, as probably my next lesson in entomology, I must say a word more. But I am not likely to heeome very learned in respect to them, and I feel quite reeonciled to a continuation of my present ignoranee. I showed one to Mr. R. when I had first learned its name, and he suggested "can it be possible that we brought them ourselves from one of the depots where the goods stayed over night?" I thought it impossible as, having found two near together, as to time and space, I thought the house must he well stocked with them. But from that day to this, I have seen only one more full-grown specimen—and I had them "on the brain" sufficiently to have allowed none to escape my seareh. I found in their vicinity a few weeks afterwards, a good many little brown bugs of the same general make up, though different in eolor, unlike anything I had ever observed before. I destroyed all I could find, and scattered a mixture of corn meal, molasses, and arseuic in places most likely to be infested. Afterwards I found some of these little bugs dead near the poison, but I have seen none for a long time. If I ever do again, I shall treat them to powdered horax, which I learn, from several, is a sure remedy.—[And, like some other "sure remedies," we have found it utterly useless.—ED.]

## A Bread or Kneading Board.

"D.," of Louisiana, Mo., sends a neat sketch and a description of a Bread Board, that he has had for many years, and finds it a useful household convenienee. The idea is, to have a board for the bread which shall be used for that purpose only, that may be readily taken down and put away, and when not in use shall oecupy but little room and at the same time be protected from dust. Figure 1 shows the hoard when not in use, and fig. 2, the same ready for work. Where the wall of the kitchen is plastered, a lining (1. fig. 2) corresponding to the size of the board will be needed, but if the walls are wainscotted this is not necessary. Above the lining is a box cornice, the front of which lifts up, and opens a place in which the rolling pin, cake-cutters, etc., are kept. The board (2) is three feet square and one inch and a quarter thick, with an inch and a half cleat securely fastened at each end, to prevent warping. Mr. D. finds no wood so suitable for the board itself as soft maple, but all the other parts may be of pine. The board is hinged to a strip (3) of the same thickness, and provided with light legs (4) to support it at a convenient hight when down; these are hinged to the board and drop down, as in fig. 1, when that is not in use. The engraving makes other description unneeessary.

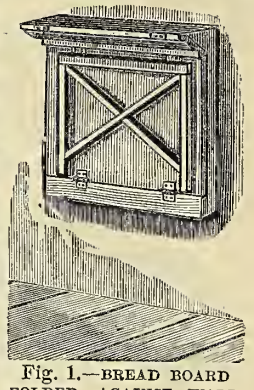


Fig. 1.—BREAD BOARD FOLDED AGAINST WALL.

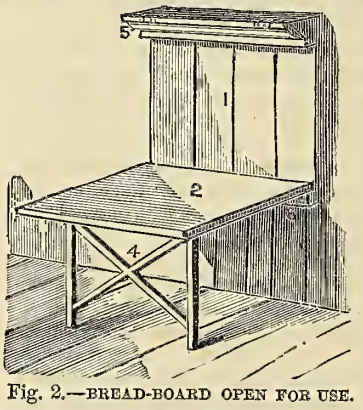



Fig. 2.—BREAD-BOARD OPEN FOR USE.

## What is Tin-ware? The Care of It.

It does not appear to be generally known that the article so eommonly used for household utensils, for cans, for roofing, etc., called "tin," really contains very little tin, seldom more than one part in forty or fifty. Tin—pure tin—is a silvery white metal, and is the lightest and easiest melted of all the metals in common use; it being only about five-eighths as heavy as lead, and requires only about two-thirds the heat to melt it. Pure tin is called "block-tin," but it is rarely used pure, the utensils, said to be made of block-tin being alloys with other metals. Our eommon tin-ware is really

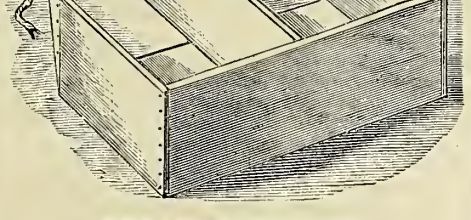
*tin-plate*—a thin sheet of *iron, coated* with a film of tin. Plates of iron of the proper size and thickness are scoured with sand and acid until perfectly clean, and then dipped several times in melted tin; a coating of tin, of variable thickness, adheres to the iron. The object of coating iron with tin in this manner is to protect the iron from rusting. Tin when exposed to the air does not rust or even tarnish, while iron readily does so, but the thin coating of tin completely protects it. No doubt that many housekeepers will be ready to assert that tin-ware does rust—and they are correct—tin-*ware* does rust, but *tin* itself does not; so long as the coating of tin is perfect, no rusting can take place. The knowledge of the fact that all our tin-ware is only tin upon the surface, but that the body is iron, should lead to greater care in the purchase and the use of such articles. Aside from the fact that the iron plate to be covered with tin may be good or bad, there is a great difference in the coating of tin; for cheaper ware, not only is the tin adulterated with lead, but this put on in the thinnest possible coating, various expedients being used to quite cover the iron and yet make the coating as thin as possible—a mere film or wash. In this, as in many other cases, the purchaser must rely upon the honesty of the manufacturer, for in this as in silver-plate the bad looks equally well with the good; the maker of the ware can buy tin-plate on which there are three or four times as heavy a covering of tin as on the cheapest. It is important to have good ware at the start. It will be understood that when a plate of tin is cut, the iron is exposed at the edges; in making up utensils careful manufacturers *tin* these edges, i. e., cover them with a film of tin. The neglect to do this is what makes cheap ware show rusty spots after a few days' use. With the best of ware the tin will in time wear off and expose the iron, but this is often hastened by improper cleaning. Some persons, especially help, pride themselves upon their bright tin-ware, which is furiously scoured with soap and sand; one such scouring will remove the tinning from cheap ware, and the best can not stand many repetitions unharmed. Nothing coarser than whiting should be used upon tin-ware, unless in the rare cases when some accident has made it necessary; care in its use, and the knowledge that the tin, like beauty, "is but skin deep"—that the articles are really iron, with a thin covering of a very soft metal—tin—should lead to a more economical treatment of these most useful household conveniences.

## Methods of Washing.

A correspondent, "R.," writes: I was very much interested and somewhat perplexed by the communication of "Ceres," a few months ago, on "The Management of the Washing." Is it progress, then, to "repudiate all washing fluids, chemical soaps, and the like?" Why not "advance" yet farther in the same direction and repudiate the soap, using still more tubs and water and hand and foot labor? The action of soap is "chemical" I suppose. What constitutes "pure" soap? For nearly a year I have been using an "electric soap" according to the directions upon the wrapper, except that I have found half a bar sufficient for the washing of the white clothes of my family, and have used common hard washing-soap with the colored clothes. I have not found this "electric" soap injurious to the clothing in any respect, neither to fabric, color, nor smell. It is never rubbed directly upon the cloth, but is dissolved in boiling water and made into a suds in the tub, into which the soiled garments are afterwards put. I have been astonished, in the meantime, to see how some shirts and other garments which I thought must be replaced several months ago, still hang together and do continued service. I have often thought how quickly an average washer-woman would have rubbed them to tatters upon the wash-board, while by the use of the soap and a little washing implement used inside a common tub, they have been preserved. I have not given a fair trial to any washing fluid except that made of sal-soda and borax—half as much borax as sal-soda. I had no fault whatever to find with this, and thought it a great help in saving labor. I have heard only praise concerning it from those who have used it—a general testimony that the clothes were as white and as well preserved after years of use as when washed in simple suds of soft-soap and water. I have no doubt whatever that clothing washed in the manner described by "Ceres" is very white and sweet, but if "Ceres" had it to do herself—four tubs (at least three) to handle, with the wringer to change back and forth, and so much water to fetch and empty out again, and the same heavy basket of wet clothes to carry out twice to the bleaching ground or clothes line, with all the steps back and forth to sprinkle the clothes as they lie in the sun each washing-day—I think she would soon find herself wearing out, whether the clothes did or not. I am afraid the process is too long and elaborate for most house-keepers to undertake. I want Science to come to the relief of house-keepers and *lighten our labors.* To be sure the object of washing is to make *clean*, and something must be done first to *loosen* the dirt which is usually held in the meshes of the cloth by the oily perspiration communicated from human bodies. Good hot soap-suds will do this, and good washing fluid of some safe alkali will hasten the process. Then this loosened dirt must somehow be removed from the meshes of the fabric. Rubbing on a wash-board, or by the hands alone, will do it, but an easier way is to use a washing-machine, provided the machine is not so cumbersome that it is more bother to get it out and use it and put it away, than it is to do without it—in short, "more plague than profit." The scalding by boiling water, either over the fire or in a tub, helps to make sure that all the oily perspiration, or other grease, is dissolved, while the soap or alkali in the water changes its properties by chemical action and renders it harmless. The hot sunshine afterwards completes this business, and carries off in vapor, while the clothes are drying, the last remnants of "dirt," provided you have used sufficient water in washing and rinsing to carry away the dust and other solid "dirt," as well as the last remains of soap used in the suds.

## An Easily Made Hand Snow-Plow.

Clearing the paths and shoveling off the snow is a job that generally belongs to the boys of the family, and while a snow-plow is hardly a household implement, the results of its use are of so much importance to the household generally that we give it here. Upon every place of sufficient size to warrant it, there should be a snow-plow drawn by a horse, but a hand-plow is a great help, especially if used while the snow is still light and dry. We have in times past described several styles of such plows, and now give one which may be put together in a few minutes, and which Mr. "M. O. L.," of Shelburne Falls, Mass., who sends the sketch, finds "a very handy device for clearing

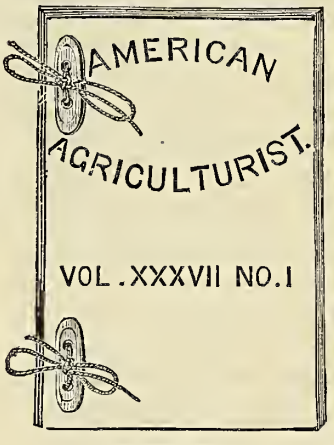


HOME-MADE PATH-CLEANER.

snow from paths." To make it, he takes a box 30 inches long by 15 wide, and 10 deep. One side of the box is taken off, and a strip of board 36 inches long and 10 wide is put through the center and braced by two pieces, each 30 inches long and 10 wide, which are nailed to this center-board and the ends of the box, as seen in the engraving. Holes are bored near the top edge of the center-board to allow the rope to be attached by which the plow is drawn. The box will fill with snow, which will give it sufficient weight. Mr. L. thinks that by using this plow he can clear his paths in one-tenth the time ordinarily required to shovel them.

## A File for the American Agriculturist.

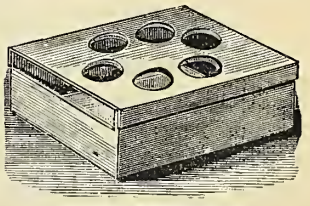
Where papers are much read, and especially where, as with the *American Agriculturist*, they are read by all the members of the family, and then kept for future reference, some contrivance for holding or temporarily binding them, helps greatly to preserve them. Several covers or temporary binders that answer the purpose excellently, are to be had at a moderate cost. Those who do not care to purchase these, can adopt some home-made device, and we have in back volumes given several that our correspondents have suggested. Any contrivance that will hold the papers together, is better than to allow them to lie about loose, and one having something in the form of a cover to prevent soiling and tearing, is all the better. Nothing can be simpler than the method in which our correspondent, "J. H. C.," secures papers; he sends us a neat little model of the affair. It is merely four pieces of hard wood, with two holes in each, the corners being nicely rounded. The engraving shows how these are used in pairs with a piece of cord passed through the holes. If two pieces of thin pasteboard, or even very heavy brown paper, of the proper size be provided to serve as covers, even so simple and inexpensive affair as this, will be found a great help, and at the end of the Volume, the papers will be in a vastly better condition for binding, than they would be without such protection.




A PAPER FILE.

## A Useful, Easily-made Egg Tester.

"A New Reader," Abilene, Kas., gives the following directions for making an Egg-tester that he finds useful: "Procure a paste-board box about three inches deep, with a cover sufficiently large to admit of cutting through it three, six, or more egg-shaped holes, large enough to nicely hold an egg, without permitting it to pass entirely through; procure a small looking-glass that will fit snugly at the bottom of the box, fasten it there with strips of sticking paper, or otherwise. Cut away about half an inch of one end of the box the full width, and remove from *one end* of the cover the part that comes down over the box when the lid is in its place on the box, and there will be an opening at one end, half an inch wide, for looking into the box, as shown in the engraving. Fill all the egg-shaped holes in the cover with eggs, place the affair in a strong light, look into the box through the opening at the end directly at the mirror, and you will be surprised to find how easy it is to see through an egg. If the inside of the box is colored or painted dark-brown, or black, the effect will be better. I have made such an egg tester of a wood box, with a handle to it, so that it can be moved about easily."



HANDY EGG-TESTER.

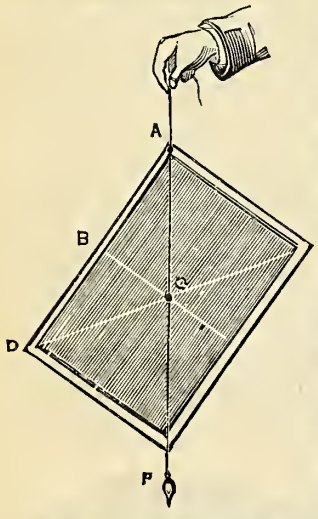
[We like to test all such devices before publishing them, and having a piece of looking-glass at hand, we had, with the aid of this and an empty

envelope-box, in about 15 minutes as good an egg-tester as one could wish. Our correspondent is not exactly correct when he speaks of its being easy to "see through an egg." When an egg is fresh, its contents allow a certain amount of light to pass through them, and the egg is *translucent* but not *transparent*. With a fresh egg the appearance is uniform, an equal amount of light passing through every part, but if decomposition has begun, or the formation of the chick has commenced, the appearance when held to the light will be more or less clouded or even opaque. One with a little practice can detect the difference instantly. Egg-testers are made for examining one egg at a time, but this simple contrivance will allow of more rapid operation. It is wasteful to set hens upon unfertilized eggs, and each setting should be examined after they have been under the hen for ten days. Any eggs that will hatch at all, will show it by that time in not allowing the light to pass clearly through them. Those that will not hatch may be used as food for young chicks. This tester allows the inspection to be rapidly made. If several hens are set at about the same time, the eggs from one may be taken to make up for the deficiencies made by removing the infertile eggs from the others, and a fresh setting be given to that one. A tester like this will also be useful to dealers who now resort to the slow process of "candling."—EDS.]

# BOYS & GIRLS' COLUMNS.

## The Doctor's Talks.

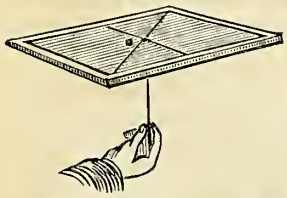
One of my young friends, away off in Oregon, too, writes—I was about to say, complainingly—but that is not exactly the word,—I should say, regretfully, that I have "discontinued" my "Talks." He—Walter A. T., says: "In your talks you used to tell us about those things that every boy ought to know, about heat and cold, and all such things, and then tell us how to try experiments, so that we could see the things ourselves. Your experiment of breaking the ink-bottle by freezing the water taught me a great deal—I shall never forget it, for I then learned what I did not know before, that water in freezing took up more room. Can't you tell us more about such things?"—His letter is longer, but I would just here say that Master Walter and I have both been thinking of the same thing. I had not "discontinued" my talks, but only *suspended* them. I had all last year to do so much about the "Microscope Club" that I omitted my other "Talks," for fear that there might be altogether "too much Doctor" in your part of the paper. Having said all that I cared to say about the Simple Microscope, I have of late been considering

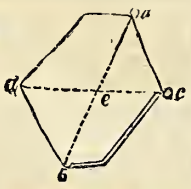


1.—CENTER OF GRAVITY OF SLATE.

WHAT WOULD BEST SUIT

the youngsters. I say youngsters, meaning both girls and boys, and it is not easy to hit upon things that will


2.—SLATE BALANCED.

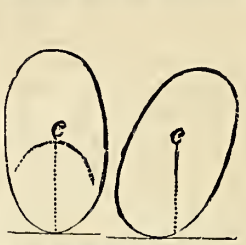


3.—IRREGULAR BLOCK.

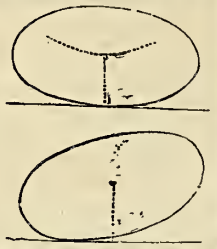
be of equal interest to both. My "Talks" have been about some matters of fact, some law of nature, which really should interest girls as well as boys, but I find that as a general thing they do not. Now Master Walter, in his letter above quoted, gives me a good subject. He would like "to know what people mean when they talk about

THE CENTER OF GRAVITY.

What is the center of gravity, and where is it?"—In renewing my "Talks" I will take my young friend's suggestion, and try to tell something about the *Center of Gravity*. As much of our comfort and our ability to move about depends upon our observing matters relating to it, the



4.—CENTER OF GRAVITY HIGH.


5.—CENTER OF GRAVITY LOW.

subject should interest girls as well as boys. To answer my correspondent's question in the fewest possible words, I can take the answer usually given in the books: "The center of gravity is that point about which all parts of a body exactly balance each other." In a ball of iron or ivory, the center of gravity will be at the center of the ball. In a wooden ruler, the center of gravity will be midway between the two ends, and half-way the width of the ruler, but if we make the ruler of three-fourths wood, and at one end have one-fourth its length of lead, the center of gravity will no longer be at the center of the ruler, but we shall have to try by balancing it to find out where it is. In some cases the center of gravity is easily found, while in others it is difficult. Suppose you wish to find the

CENTER OF GRAVITY OF YOUR SCHOOL SLATE.

Drive a little tack into the frame at *A*, attach a string to the tack, and hang up the slate. Then hold a plumb line (a small cord with a large nail or any other weight will answer) at the tack, and draw a mark with the pencil, to show where the line crosses the slate; then put the tack at *B*, hang the slate again, and mark where the line falls; remove the tack to *D*, and repeat the marking. The point *C*, fig. 1, the place where these different lines cross, will be the center of gravity of the slate, and if the slate-pencil be placed at this point, the slate will balance, as in fig. 2. If instead of a body of a regular form, like a slate, where the center of gravity corresponds to the point where lines drawn from the corners cross each other, the body is irregular, as in the piece of board, fig. 3, you have only to hang it up, first by the point *a*, and mark a line. Then by the point *c*, and mark where the plumb-line crosses the first line, and you will have the center of gravity at *e*; if a little hole were made at *e*, and a pin or other pivot put through it, the piece of board would keep its place in any position. For a body to stand firm and steady, its center of gravity

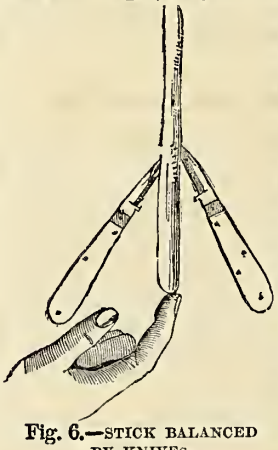


Fig. 6.—STICK BALANCED BY KNIVES.

MUST BE AS LOW AS POSSIBLE.

Take an oval board, for example, as in fig. 4, the center of gravity being at *c*. It will be very difficult to make it stand, as in the figure at the left hand, its center of gravity tending to fall. On the other hand, when placed as in fig. 5, the piece will stand very firm. While the least movement will upset fig. 4, if fig. 5 be disturbed it comes back at once to its place. The center of gravity is not always *within* the body, but may be at some point *outside*. Thus in a ring, the center of gravity is at a point within the circle. By a knowledge of this fact, some experiments may be made which, at first sight, are rather puzzling. In the old trick of balancing a cork by means of two forks stuck into it, at opposite sides, or a similar one with a stick and two knives, as in fig. 6, the center of gravity of the whole affair, the stick and knives together, is somewhere below the tip of the finger. Another form of this experiment is given in fig. 7. This is a curved piece of wood with a straight portion at the center, the ends being made heavy by means of pieces of lead; the center of gravity in this case is between the heavy ends, and this allows it to be balanced in the singular manner shown in the engraving. Having said so much about the center of gravity, I will give you some other experiments which are easily performed, and let you explain them for yourselves. Fig. 8 shows how a pail of water may be hung upon a light stick, laid upon the edge of a table, *A*. The stick, *D*, *C*, has a notch cut in it at *E*, and another stick, *E*, *G*, has one end caught in this notch, with the other end resting against the bottom of the pail at *G*. The pail may now be filled with water and still remain in place. This experiment may be varied, as in fig. 9, by using a 56-lb. or other heavy weight. The weight is hung by a cord, and a rod is used, as with the pail of water. It may be that the perpendicular dotted lines will help you to an explanation. Figure 10 shows an old toy, which no doubt many of you have seen, and it may be used to illustrate what seems at first a contradiction, *i. e.*, that a body that would fall by its own weight, may be prevented from falling by adding weight in the direction towards which it would fall. The horse by itself, if placed upon the table would fall forward, but if we add to it a wire with a heavy weight at one end, and *bend the wire*, it will stand, and even prance in a remarkable manner on the very edge of the table. There is a

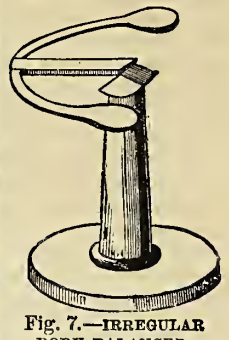


Fig. 7.—IRREGULAR BODY BALANCED.

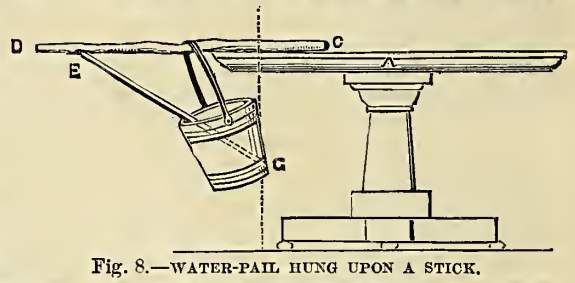


Fig. 8.—WATER-PAIL HUNG UPON A STICK.

great deal more to say about the Center of Gravity; we wish to talk about Gravity itself and other matters concerning it. But this will give my young Oregon friend and the rest of you quite as many experiments as you can make ready and study upon at one time.

## The Doctor's Correspondence.

Well, boys and girls, here is something that I did not think could be possible! I have been asked to explain by one who, of all others, I should go to for an explanation. I have had questions from girls, and from boys,

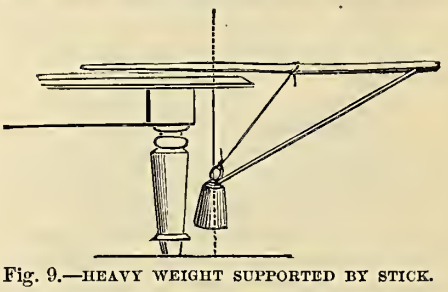


Fig. 9.—HEAVY WEIGHT SUPPORTED BY STICK.

from one end of the earth to the other; those I accepted as a matter of course, but

A QUESTION FROM "AUNT SUE"

is something I never looked for, still it is as welcome as it is unexpected. "Aunt Sue" here sets a most excellent example. While she knows more about "matters and

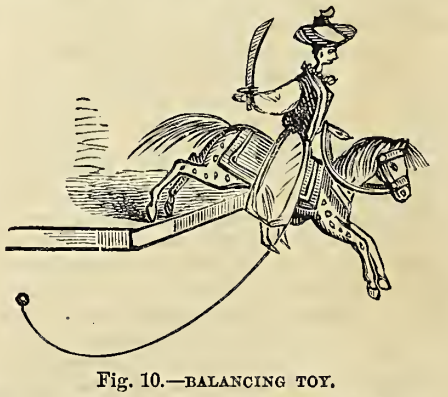


Fig. 10.—BALANCING TOY.

things in general" than almost any one I have ever met, the very moment she comes across a thing that she *doesn't know* about, *she asks*. I have always found it so. Those who know the most, are the most ready to learn.

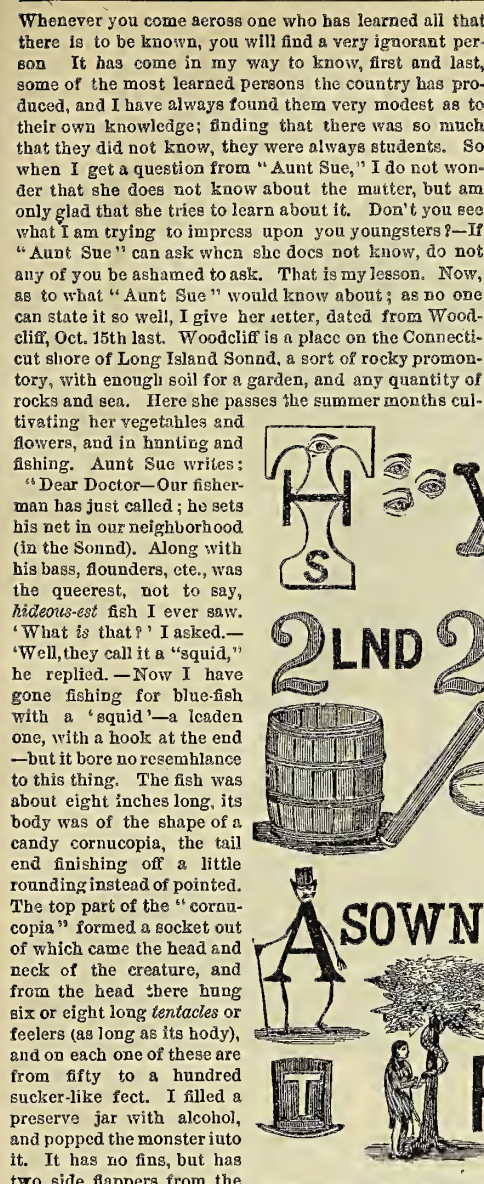
Whenever you come across one who has learned all that there is to be known, you will find a very ignorant person It has come in my way to know, first and last, some of the most learned persons the country has produced, and I have always found them very modest as to their own knowledge; finding that there was so much that they did not know, they were always students. So when I get a question from "Aunt Sue," I do not wonder that she does not know about the matter, but am only glad that she tries to learn about it. Don't you see what I am trying to impress upon you youngsters?—If "Aunt Sue" can ask when she does not know, do not any of you be ashamed to ask. That is my lesson. Now, as to what "Aunt Sue" would know about; as no one can state it so well, I give her letter, dated from Woodcliff, Oct. 15th last. Woodcliff is a place on the Connecticut shore of Long Island Sound, a sort of rocky promontory, with enough soil for a garden, and any quantity of rocks and sea. Here she passes the summer months cultivating her vegetables and flowers, and in hunting and fishing. Aunt Sue writes:

"Dear Doctor—Our fisherman has just called; he sets his net in our neighborhood (in the Sound). Along with his bass, flounders, etc., was the queerest, not to say, *hideous-est* fish I ever saw. 'What *is* that?' I asked.—'Well, they call it a "squid,"' he replied.—Now I have gone fishing for blue-fish with a 'squid'—a leaden one, with a hook at the end—but it bore no resemblance to this thing. The fish was about eight inches long, its body was of the shape of a candy cornucopia, the tail end finishing off a little rounding instead of pointed. The top part of the "cornucopia" formed a socket out of which came the head and neck of the creature, and from the head there hung six or eight long *tentacles* or feelers (as long as its body), and on each one of these are from fifty to a hundred sucker-like fect. I filled a preserve jar with alcohol, and popped the monster into it. It has no fins, but has two side flappers from the center to the stern. I think it must be a species of Cuttle-fish. I enclose you a rough sketch of him. Will you tell us something about the curious and hideous creature, and oblige AUNT SUE?"

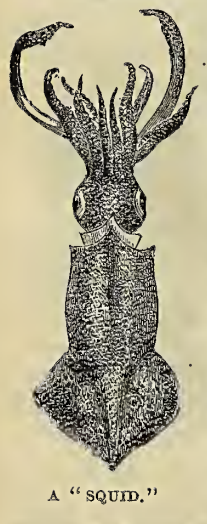
I do not wonder that Aunt Sue was surprised at the appearance of the animal—for it is about as unpleasant a looking creature as one can meet with. It is of a dead, dull white throughout, and its long arms have an unpleasant *crawly* look. The fisherman gave her the right name,

IT IS A SQUID.

It is often used for bait in fishing, and the leaden outfit that she speaks of as a "Squid," is so called as it has some resemblance to, or is used for the same purpose as the real Squid. The general appearance of the Squids, of which there are several, is given in fig. 1—and you will see that "Aunt Sue" well describes it. It has a long body, with two fins near the rear end; within the body is a long plate, to strengthen it. The head is provided with arms, which serve as both arms and feet; hence naturalists class such animals as *cephalopods*, which means animals that have feet upon their heads. The Squids of our coast are related to the Cuttle-fish, described and figured in March, 1877. The small plate which the Squid has to strengthen its body, is in the Cuttle-fish very large, and is known as "Cuttle-fish bone." On the other hand the Squid is related to that monster, the *Octopus*, or "Devil-fish," an enormous creature of a similar structure, with arms 20 or 30 feet long. While ridiculous stories have been told about the sinking of ships by this "Devil Fish," there is no doubt about its great size and power to do mischief. There are well known cases in which these monsters have attacked boats, and those in them have only got clear by cutting off the arms by the use of an axe. Aunt Sue's Squid is a useful creature, serving the fishermen for valuable bait. It is known to naturalists as *Loligo*, of which there are several species on our coast. If we imagine a creature a great deal like it, with arms 20 or 30 feet long, and its body of a size in proportion to the arms, we can understand why it is fortunate for our fishermen that these larger *cephalopods*, though they are sometimes met with on the far Eastern Coast, are quite rare.




**Illustrated Rebus.—No. 465.**—Here we are once more with a story written in picture language somewhat after the manner of that used by the Indians and the Ancients. It is called an "Illustrated Rebus." Let's see: it contains a lot of eyes, one ear, two whole worlds and a house; figures, a few letters, a harrel, an egg and a boat; a box, a horse, a hat, a woman, a tree and an ass. And what does it all mean?



A "SQUID."

## Our Puzzle-Box.

PI.

Het Flacironia stonticlutonia toncinoven sha dodpate a nocites vigdinrop hatt ether-thofurs fo a ruiy yam redren a crevdit ni lal ceass peetex lyfoue.

CONCEALED VERBS.

1. Pride may he good or bad, false or manly. (Five verbs hidden.)
2. It is well to have a proper understanding of the fact. (Seven.)
3. The top layer was a yard and a half long over the door. (Five.)
4. If lying is a sin, get rid of the liar: drop, utterly, his company. (Eight.)
5. I dread employing that boy to grind my coffee: I should like an extra certificate of good behavior. (Nine.)

DOUBLE ACROSTIC.

The initials name an epic poem, the finals give the name of the author.—1. A measure. 2. An exclamation. 3. A figure or representation. 4. Rough, stern. 5. A physician. JOHN W. WHEATLEY.

GEOGRAPHICAL PUZZLE.

(Fill the blanks with geographical names.)

As ———[1] and ———[2] were hunting one day, they separated, when ———[2] shot a ———[3], which he threw across the ———[4] of his saddle, when ———[1] came upon a ———[5] which he shot, and ———[2] pronounced it ———[6] to anything he ever saw; when they started for home, because it was so ———[7].

(1. A river in Idaho. 2. A sound north of North America. 3. A river in Wisconsin. 4. A cape of S. America. 5. Part of Michigan. 6. A lake in North America. 7. A lake in British America.) B. A.

ALPHABETICAL ARITHMETIC.

ORTY) ANRAILE (YGEN
YNAT
EYEI
GAON
EGAL
EAIT
NIIE
NONG
TAO

ANAGRAMS.

1. Riot airing.
2. Mitt, a Sachem.
3. O wise mare!
4. A vast code.
5. Mad Mr. Troy.
6. Vain concerts.
7. Tussel, Dan.
8. Use a blinder.
9. Pure trade.
10. Song, verse.

DROP-LETTER PUZZLE.

(*Every other letter is omitted.*)

1. — a — a — a — s — r —, a house for travellers.
2. — r — m — l — i —, an old cat.
3. — c — u — c — a — o — y, containing a threat.
4. — p — c — y — h — l, doubtful.
5. — m — y — e — n, the highest heaven.
6. — i — t — r — r — e —, a plant.
7. — r — d — e — o — s, living by plunder.
8. — r — g — a — i — a —, officious.

SQUARE WORD.

1. My first names a sea found in Europe,
2. My next is a belt, I confess,
3. My third is both weighty and irksome,
4. My fourth is a portion of dress. SPHINX.

NUMERICAL ENIGMAS.

1. I am composed of 12 letters:
My 4, 5, 6, 9, is an imported article of food.
My 8, 5, 1, is part of the body.
My 1, 9, 10, is an enclosure.
My 7, 9, 12, is a protection.
My 3, 11, 2, 12, is a household article.
My whole was the name of a great statesman. ALICE S. P.

2. I am a word of ten letters:
My 1, 10, 3, 6, inhabits the sea.
My 5, 3, 10, 7, is a bird.
My 8, 4, 7, 2, are domestic animals.
My 9, 2, 1, 10, 3, is an ancient outcast.
My whole is found on the seashore. E. S. M.

3. I am composed of 14 letters:
My 2, 9, 7, is a number.
My 11, 4, 6, is another number.
My 1, 5, 10, 6, is a water-fowl.
My 12, 3, 3, 14, 13, is a French town.
My whole is a Divine command. BESSIE.

CROSS-WORD.

My first is in blame but not in condemn,
My next is in flower but not in the stem,
My third is in offer but not in give,
My fourth is in riddle but not in sieve,
My fifth is in wicked but not in bad,
My sixth is in crazy but not in mad,
My seventh is in bottle but not in jar,
My eighth is in carriage but not in car.
My ninth is in lovely but not in sweet,
My tenth is in town but not in street,
My whole is said to benefit many,
But for my part I never want any. JAMIE.

ANSWERS TO PUZZLES IN THE JANUARY NUMBER.

SYNCOPATIONS.—1. Rose, roe. 2. Coat, cat. 3. Colt, eot. 4. Carp, cap. 5. Aunt, ant. 6. Plea, pea. 7. Aloe, ale. 8. Reed, red. 9. Tome, toe. 10. Lead, lad.

HIDDEN LITERARY CELEBRITIES.—1. Pope. 2. Gray. 3. Scott. 4. Keats. 5. Poe. 6. Willis. 7. Cowper. 8. Dante.

ALPHABETICAL ARITHMETIC.—7041)9805236(1392.
(*Key.*—He is my colt.)

NUMERICAL ENIGMAS.—1. Agriculture. 2. Rio de la Plata. 3. No being acts more rigidly from rule than the Indian.

CROSS-WORD.—Lafayette.

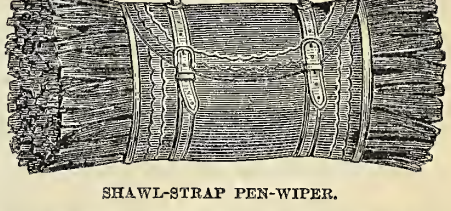
PI.—Whalebone is no bone at all; nor does it possess any properties of bone. It is a substance attached to the lower jaw of the whale, and seems to strain the water which the creature takes up in large mouthfuls.

| DOUBLE ACROSTIC. | BLANK ANAGRAMS. |
|---|---|
| SARATOGA.—MONMOUTH. | 1. Adventures. |
| S—ache —M | 2. Insubordinate. |
| A— rg —O | 3. Oleaginous. |
| R—obbi—N | 4. Poulterers, |
| A— r —M | 5. Adversaries. |
| T—omat—O | 6. Tomahawks. |
| O—rmol—U | 7. Earliest. |
| G— oa —T | 8. Rapacity. |
| A— s —H | 9. Mistletoe. |

Puzzles, answers, and such matters as were formerly directed to "Aunt Sue," may hereafter be sent to "The Doctor," No. 245 Broadway, New York.

## A Shawl-Strap Pen-Wiper.

In examining the conveniences of a new writing-desk which a friend was showing with much satisfaction, we came across a new pen-wiper—new to us at least—which we learned was a Christmas present from a daughter. Thinking that other daughters might be glad of the hint, we give an engraving of it. Pen-wipers being useful, and capable of being made ornamental, are favorite articles for presents and for sale at fairs, and those who are tired



SHAWL-STRAP PEN-WIPER.

of the old styles, ranging all the way from cats and mice to much dressed young ladies, will be glad of a neat and pretty one. The body of the pen-wiper is a strip of broadcloth or other suitable material, cut at the edges, to represent the fringe of the shawl, but not too fine, and made into a roll. The shawl cover is a bit of scarlet or other bright colored fabric, worked with chain stitch in white silk, and provided with a miniature shawl-strap of very thin leather, and made to resemble a real strap by stitching, and the use of tiny buckles, if obtainable.

## Musk-Rats—How They are Hunted.

The musk-rat is one of the few wild animals that are not driven away as the country becomes settled, and wherever there are streams, ponds, or other bodies of water, there are pretty sure to be musk-rats. They are not pleasant neighbors, as they do much mischief, and demand for them, but usually the price is so low that it would hardly pay to hunt them for their skins alone. The chief reason for hunting them is on account of the mischief they do. They live in part upon the roots of water plants, and also eat the fresh-water "clams;" but they like cultivated produce also, and go out at night to hunt stores to lay up for winter, and take the farmers' sands of acres of marsh-land into cultivation, had to be given up on account of the musk-rats. Being mischievous and injurious, they are hunted as vermin, but so prolific are they, that their numbers do not seem to greatly decrease. While the skins bring but little, yet boys, where they abound, find that this small sum helps their income, and in such localities hunting musk-rats is one of the winter sports on Saturdays and on other holidays. In the warm weather the animals are easily caught in steel-traps, or in common box-traps, placed just below the surface of the water where they pass to reach their holes. In some places they may be dug out of their burrows in the bank. For a musk-rat hunt in winter, several boys go together, and a good dog is a useful member of the party; they need axes and a stout scoop-net fastened to a pole. When fresh ice has formed, and so clear that whatever is below, may be seen, is the proper time. The first thing to be done, is to find out the entrance to the house; to do this, one boy stamps upon the house, while the others watch through the ice, to see where the rats leave it; as there are usually several in one hut, the entrance is easily found, when a hole is cut in the ice at the proper place. Other houses are examined in the same manner, and holes cut for them. In 15 or 20 minutes, or sooner, the animals return to the house, when one boy puts the net through the hole in the ice, and holds it at the entrance, while the others disturb the musk-rats once more; this time, in fleeing, they go into the net, three or four being caught at one haul; they are quickly brought to the surface, where the dog dispatches them. The rats are skinned, and the skin stretched over a board, to dry. Trappers generally use a bow-stretcher, which is a branch of hickory or other elastic wood, bent in the shape of an ox-bow

Fig. 1.—BOYS CATCHING MUSK-RATS THROUGH THE ICE.

as they are very sly, keeping out of sight in the day time, you may live where they are abundant and rarely see one. The musk-rat is a truly American animal, being found in no other country, while here it extends from the Gulf of Mexico away up into the Arctic regions, and from the Atlantic to the Pacific coasts. It belongs to the gnawing family—*Rodents*, as the naturalists call them—and is related to the squirrels, beaver, rats, gophers, mice, and other animals with sharp front teeth, especially fitted for gnawing. In general shape it is like a large rat, the body being from 13 to 15 inches long, while its flattened, scaly tail is two-thirds as long as the body. Its general color is dark brown, which is lighter on the under parts. The animal has a strong musky odor, from which it takes its name. The Indians called it *Musquash*, a name by which it is known in many parts of the country. The feet are partly webbed and especially fitted for swimming, and the animal is much more at home in the water than on land; it will dive and swim for a long distance under water and appears to enjoy playing about in it. Like the beaver, it has two kinds of dwellings; where the stream has suitable banks it makes burrows in these, the opening being under water; they burrow upward from the entrance to find a place for their nests that shall be dry in the highest freshets; their burrows have been known to reach as much as 50 feet from the opening; at the end of these they make their nests and lay up their stores for winter. But the banks of the stream do not always afford a safe place for winter, and where the shores are low and swampy, they build huts or mounds of twigs, coarse grass, reeds, etc., as in figure 1; these extend two to four feet above the surface of the water, below which is the entrance, and in the upper part of these are soft beds of grass, where a number of musk-rats can store themselves away in cold weather. It is when they are thus housed that musk-rats are hunted in winter. You may ask why they should be hunted at all, as they are not good to eat—but do not be so sure of that. Those who have eaten the flesh say, that were it not for the name "rat," they would be esteemed as food, and that a young and fat musk-rat is something very good. The skins are at times valuable, *i. e.*, when the fashions in furs make a carrots, parsnips, and other roots, and even ears of corn to their winter quarters, and put them away for future use. The amount taken by them in this way can not be very large, and were this all the mischief they did, it might well be overlooked, and we would be willing to give them their winter's feed for the sake of seeing them now and then swimming about and diving, to come up in some unexpected place, a long distance off. But their burrowing habits make them most destructive animals wherever there are embankments or dams, to hold water, and many a mill-dam, built at a great cost, has been utterly ruined by them. Some large drainage works, not far from New York City, which would have brought thou but for muskrats and other small animals, the skins are brought into better shape by the use of a board. This is 20 inches long, 6 inches wide at one end, and tapering to 5¼ inches at the other, where it is worked to a neat oval point, and the edges made thin and rounded.

Fig. 2.—FEMALE MUSK-RAT AND HER YOUNG.

# TEAS

We are now supplying all our customers with **Extra Choice Teas** at the very lowest wholesale price, **50c.** per pound. **Good Teas,** 30c., 35c. and 40c. per pound; and on Tea Orders of $5 and upwards,

## All Express Charges Paid.

Our business connections with China and Japan, direct importations from the place of growth, long experience in the business, and special contracts with the Express Co.'s for reduced rates, place us before the public as the

**Leading Tea House in the U. S.,**

and the **PIONEERS IN REDUCING PRICES** and **KEEPING THEM DOWN.**

Don't give high prices, but send direct to the

**OLD RELIABLE TEA HOUSE**

(The Great American Tea Company),
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**Greatly Reduced Prices.**

Don't be deceived by other concerns who imitate our style and manner of doing business.

We urge all lovers of good Teas to give us a trial.

**Special Inducements on Large Orders.**

FULL PARTICULARS FREE.

**THE GREAT AMERICAN TEA CO.,**

**Importers, 31 and 33 VESEY STREET,**
P. O. Box 4,235. **NEW YORK.**
*The Largest and Cheapest Tea House in the United States.*

# Steam - Engines.

**FOR 1878 AND 1879.**

More effective and more complete, and more readily adapted to the various mechanical and agricultural uses than any other in the market. Practical improvements accumulated from twenty years' manufacturing experience, with reputation maintained and success established.

Send for Circulars, descriptive, and containing testimonials concerning our **PORTABLE, STATIONARY and AGRICULTURAL STEAM-ENGINES.**

**WOOD, TABER & MORSE,**
**Eaton, Madison Co., N. Y.**

**THE**

**Only Sensible Shoe for Children**

**Are those with the SILVER or**

**THE (A.S.T.Co) BLACK TIP UPON THEM.**

**THEY REDUCE SHOE BILLS ONE-HALF.**

# J. M. THORBURN & CO.,

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# SEEDS

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**Improvement for 1879.**

**THE SAFETY HOT BLAST OIL STOVE.**

☞ Does not heat the house. Perfect for all kinds of Cooking and Heating Irons. Always ready and reliable. The most satisfactory Stove made and the Cheapest. ☜ Send for circulars.

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**L. E. RAWSON, 34 MAIDEN LANE, N. Y. CITY,** Importer of **Annatto and Dairy Coloring.**


# THIRTY-FOURTH ANNUAL REPORT

OF THE

# New-York Life Insurance Company,

## Office, Nos. 346 & 348 Broadway.

## JANUARY 1, 1879.

**Amount of Net Cash Assets, Jan. 1, 1878, - - - - $34,452,905 29**

### REVENUE ACCOUNT.

| | | |
|---|---|---|
| Premiums received and deferred | $6,121,856 04 | |
| Less deferred premiums January 1, 1878 | 396,289 26 | —$5,725,566 78 |
| Interest received and accrued | 2,264,560 48 | |
| Less interest accrued January 1, 1878 | 315,895 35 | —$1,948,665 13—7,674,231 91 |
| | | **$42,127,137 20** |

### DISBURSEMENT ACCOUNT.

| | | |
|---|---|---|
| Losses by death, including Reversionary additions to same | $1,687,675 61 | |
| Endowments matured and discounted, including Reversionary additions to same | 673,051 74 | |
| Life annuities and reinsurances | 231,005 29 | |
| Dividends and returned premiums on cancelled policies | 2,288,674 25 | |
| Commissions, brokerages, agency expenses, and physicians' fees | 518,809 94 | |
| Taxes, office and law expenses, salaries, advertising, printing, etc | 417,258 78 | |
| Reduction of values on United States and other stocks | 88,635 00 | |
| Profit and loss account | 3,568 98 | —5,913,679 59 |
| | | **$36,213,457 61** |

### ASSETS.

| | | |
|---|---|---|
| Cash in bank, on hand and in transit, since received | $ 932,839 43 | |
| Invested in United States, New York City, and other stocks, (market value $15,415,105 34) | 14,791,267 72 | |
| Real estate | 4,582,270 42 | |
| Bonds and mortgages, first lien on real estate (buildings thereon insured for $12,860,000, and the policies assigned to the company as additional collateral security) | 14,364,158 43 | |
| *Loans on existing policies (the reserve held by the company on these policies amounts to $3,225,000) | 621,984 93 | |
| *Quarterly and semi-annual premiums on existing policies, due subsequent to Jan. 1, 1879 | 379,839 09 | |
| *Premiums on existing policies in course of transmission and collection (estimated reserve on these policies $590,000; included in liabilities) | 146,834 75 | |
| Agents' balances | 88,036 91 | |
| Accrued interest on investments to Jan. 1, 1879 | 306,225 93 | |
| | | $36,213,457 61 |

**A detailed schedule of these items will accompany the usual annual report filed with the Insurance Department of the State of New York.*

| | |
|---|---|
| Excess of market value of securities over cost | 623,837 62 |
| **Cash Assets, Jan. 1, 1879 - - - - - - - -** | **$36,837,295 23** |

Appropriated as follows:

| | |
|---|---|
| Adjusted losses, due subsequent to Jan. 1, 1879 | $399,436 63 |
| Reported losses, awaiting proof, etc | 180,993 39 |
| Matured endowments, due and unpaid | 19,601 07 |
| Reserved for reinsurance on existing policies; participating insurance at four per cent Carlisle, net premium; non-participating at five per cent Carlisle net premium | 32,369,333 40 |
| Reserved for contingent liabilities to Tontine Dividend Fund, over and above a four per cent reserve on existing policies of that class | 1,041,456 87 |
| Reserved for premiums paid in advance | 14,987 18—34,025,858 95 |
| Divisible Surplus at four per cent | 2,811,436 64 |
| | **$36,837,295 23** |

**Surplus, estimated by the New York State Standard at 4 1-2 per cent, over.....$6,500,000 00**

From the undivided surplus of $2,811,436.64, the Board of Trustees has declared a Reversionary Dividend to participating policies in proportion to their contributions to surplus, available on settlement of next annual premium.

DURING THE YEAR, 5,082 POLICIES HAVE BEEN ISSUED, INSURING $15,949,986.

| | | | |
|---|---|---|---|
| | Number of Policies in force Jan. 1, 1876, 44,661. | Amount at risk, | $126,132,119. |
| | Number of Policies in force Jan. 1, 1877, 45,421. | Amount at risk, | 127,748,473. |
| | Number of Policies in force Jan. 1, 1878, 45,605. | Amount at risk, | 127,901,887. |
| | Number of Policies in force Jan. 1, 1879, 45,005. | Amount at risk, | 125,232,144. |
| Death-Claims paid 1875, $1,524,815. | Income from Interest, 1875, $1,870,638. | Divisible surplus at 4 p. c. Jan. 1, 1876, | $2,499,656. |
| Death-Claims paid 1876, 1,547,648. | Income from Interest, 1876, 1,906,950. | Divisible surplus at 4 p. c. Jan. 1, 1877, | 2,636,816. |
| Death-Claims paid 1877, 1,638,128. | Income from Interest, 1877, 1,867,457. | Divisible surplus at 4 p. c. Jan. 1, 1878, | 2,664,144. |
| Death-Claims paid 1878, 1,687,676. | Income from Interest, 1878, 1,948,665. | Divisible surplus at 4 p. c. Jan. 1, 1879, | 2,811,436. |

### TRUSTEES:

| | | | |
|---|---|---|---|
| MORRIS FRANKLIN, | JOHN MAIRS, | WILLIAM A. BOOTH. | EDW. A. WHITTEMORE, |
| ROBERT B. COLLINS, | DAVID DOWS, | WM. H. APPLETON, | H. B. CLAFLIN, |
| CHARLES WRIGHT, M. D., | HENRY BOWERS, | EDWARD MARTIN, | LOOMIS L. WHITE. |
| J. F. SEYMOUR, | JOHN M. FURMAN, | S. S. FISHER, | GEORGE A. OSGOOD, |
| WILLIAM BARTON, | HENRY TUCK, M. D., | WILLIAM H. BEERS. | |

**MORRIS FRANKLIN, President.**

**WILLIAM H. BEERS, Vice-President and Actuary.**

THEODORE M. BANTA, Cashier.

D. O'DELL, Superintendent of Agencies.

CHARLES WRIGHT, M.D., Residence, 109 E. 26th St. } Medical Examiners.
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**Bliss' Illustrated Amateur's Guide** to the **Flower** and **Kitchen Garden,** with colored chromo; 216 pages, price **35 Cents.**

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# NEW SPRING WHEATS.

## 128 Bushels to the Acre.

**791 lbs. Champlain, 528 lbs. Defiance,**

**Grown from a Single Pound of Seed.**

**Heads 5 to 7 inches long, 75 to 100 kernels per head.**

**CHAMPLAIN,** a red, bearded variety—cross between the Black Sea and Golden Drop.

**DEFIANCE,** a white, bald variety—cross between the Club and a white Cala. wheat.

Prices of each variety:—75 cts. per lb.; 3 lbs., $2, by mail, prepaid. At purchaser's expense: $5 per peck; $15 per bushel.

Our Wheat Circular, giving cultivation whereby the above yields were produced, reports of successful competitors for our $250 Premiums offered in 1878, and full of valuable information to all wheat growers, mailed to all applicants.

## ACME TOMATO.

**The Perfection of all Tomatoes.**—One of the earliest, handsomest, most productive, best flavored, as well as the best market variety—every fruit perfect—the description given by us in our catalogue last spring, has been fully verified, and testimonials from every part of the country have been received by us during the past season, declaring it the very best variety ever offered. P'kt. 10c., ounce, 75c., ¼ lb., $1.50.

# Pearl Millet.

Clean Seed, 15 cts. oz., 40 cts. ¼ lb., $1.00 lb. Seed in chaff, 50 cts. pt., 80 cts. qt., by mail, post-paid.

## Prickley Comfrey Roots.

15 cts. oz., 40 cts. ¼ lb., $1.00 lb., by mail, post-paid, directions for cultivation accompanying each lot.

## NEW DWARF EARLY PEA.

## BLISS' AMERICAN WONDER.

The best early Pea in cultivation, does not require bushing, ¼ pt. pkts. 15 cts., pint 40 cts., qt. 75 cts., by mail.

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**FOR 1879 Revised and Enlarged.** NOW READY. Contains *Brief Directions for the Management of the Flower and Vegetable Garden and Greenhouse*; also, *Select Lists of Vegetable, Flower, and Grass Seeds, Bulbs, Plants, and every Garden Requisite.* Beautifully illustrated. Send two 3-cent stamps for postage.

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## $1.00 SEEDS FOR 25 Cts.

**Our 25 Cent Box of Seeds** contains *Pearl Millet, Earth Almond, Burpee's Early Beet, Acme Tomato, Marblehead Mammoth Cabbage, Hanson Lettuce, Breakfast Radish, Marblehead Squash, and Russian Sunflower*; worth at retail $1.00, but costs, post-paid, only **25 Cents.** We make this extraordinary offer to extend our trade.

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My new book on gardening, entitled "VEGETABLE PLANTS," (see page 46, Feb. A. A.), will be sent FREE to all new customers buying Fifty Cents worth of my seeds in packets. When sold at $1.00 per copy, Dr. Hexamer, said: "*Many a single page contains more valuable hints than could be obtained for ten times the price of the whole book.*" Send at once for free catalogue, giving table of contents and full particulars. ISAAC F. TILLINGHAST,
Factoryville, Wyoming Co., Pa.

**GREENLEE CORN.** 32-rowed, nothing new, tested for 50 years on one farm, large ears, matures early, highly productive. For full description and price list send postal with address to J. C. GREENLEE, Harland Farm, *East Bethlehem, Wash. Co., Pa.*

LATE SNOWFLAKE.

## New Varieties of Potatoes.

**BLISS' TRIUMPH.**—An extra early variety, ripening a week to ten days earlier than the Early Rose—and one of the most attractive in appearance. Superior quality and very productive.

**TROPHY.**—A new and exceedingly fine, medium early, red-skinned variety, resembling the Snowflake in appearance and quality. It might with propriety be called a Red-Skin Snowflake.

This variety was exhibited in London at the great International Potato Show, in October last, and received a first-class certificate.

Price of each, 75c. per lb.; three lbs. $2.00, by mail post-paid. Peck $2.50; ½ bush., $3.00; bushel, $5.00; bbl., $12.00.

**LATE SNOWFLAKE.**—A sport of the Early Snowflake, and fully equal to that favorite variety in quality and appearance, ripening three weeks later, and much more productive. 60 cts. lb.; 2 lbs. $1.00, by mail; peck., $1.50; bush., $4.00; bbl., $8.00.

**BLISS' ILLUSTRATED POTATO CATALOGUE,** 48 pages, contains a descriptive list of all the new varieties recently introduced, with many other desirable sorts, beautifully illustrated. Centennial collection of 500 varieties. Also much useful information upon the cultivation of this valuable esculent. 10c.

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### (THE NEW FODDER PLANT.)

Yields 100 tons green = 16 tons dry per acre.
60c. per pint (by mail, postpaid).
$1.00 " quart " "
By express, buyer to pay charges, $5 per peck.
Statement of our experiments with it, and instructions for culture, free on application.

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**Genuine Flower and Garden Seeds.**

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Send three-cent Postage Stamp for Splendid Illustrated Catalogue and Amateur Guide to the Flower and Vegetable Garden for 1879, containing about two hundred Illustrations, and two beautiful colored Plates.

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Catalogue of Field, Garden and Flower Seeds for 1879, *with directions for cultivation,* sent free, pre-paid by mail, to any reader of the *American Agriculturist* who will send me his or her address on a postal card. Address,

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Are prepared to offer special inducements for the spring of 1879, on Apples, Crab Apples, Tetofsky, Haas, Pewaukee, Peaches, Cherries, Currants, and Gooseberries, Raspberries, Blackberries, and a general Nursery Stock.

We respectfully solicit correspondence.

**The Heikes Nurseries Co.,**
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## $1.00 FLOWER GARDEN $1.00

13 Monthly Blooming Roses or, 22 Splendid Verbenas, $1.
4 Geraniums, 4 Abutilons, and 4 Begonias or 12 Carnations, $1.
4 Fuchsias, 4 Carnations, & 4 Double Petunias, all different, $1.
4 Calla Lilies, 4 Tuberoses and 4 Smilax or 12 Geraniums, $1.
5 Heliotropes, 5 Lantanas & 5 Chrysanthemums or 10 Fuchsias, $1
2 Golden Tricolor, 4 Silere & 2 Happy Thought Geraniums, $1.
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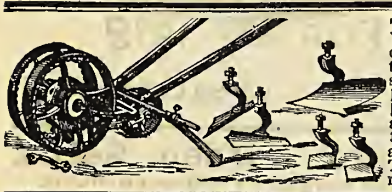

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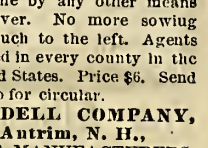

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**SPLENDID FLOWERS** OVER 1200 Distinct Varieties
All **Strong Plants,** each labeled, delivered safely by mail. **Largest assortment. Low prices.** In business **25 years.** *Guarantee satisfaction.* Stock comprises *all desirable varieties.* Only mature plants sent. Our new **Illustrated Hand-Book,** sent free, contains name and description of each plant, with instructions for successful cultivation. *Do not purchase Plants* **elsewhere** *before sending for our new* **HAND-BOOK** Every lover of *flowers* should have it. All buyers of *cheap plants* should have it. Every one wanting *new* and *choice plants* should send for our *Hand-Book.* HOOPES, BROTHER & THOMAS, CHERRY HILL NURSERIES, West Chester, Pa.

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**LILY OF THE VALLEY**
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**BEAUTIFUL FLOWERS**
**A GREEN-HOUSE AT YOUR DOOR**
*We will send free by mail, and guarantee their safe arrival in* **Good Condition,** *our choice*

| | | |
|---|---|---|
| **12 ROSES** | 12 sorts, | **$1** |
| **20 VERBENAS** | 20 " | **$1** |
| **15 Basket** *or* **Bedding Plants** | 15 " | **$1** |
| **10 GERANIUMS** | 10 " | **$1** |
| **10 CARNATIONS** | 10 " | **$1** |
| **10 Tuberoses,** *all Pearl, large and double* | | **$1** |
| **12 Gladioli,** *all Flowering Bulbs* | | **$1** |
| **2 Camellia Japonicas** *and* **2 Azaleas** | | **$1** |
| **Hundreds** *of others—* **CHEAP,** *and many* **NEW AND RARE!** | | |

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| | | |
|---|---|---|
| **6 Hardy Flowering Shrubs** | 6 sorts, | **$1** |
| **10 Currant Bushes** | 3 " | **$1** |
| **25 Raspberry Plants** | 5 " | **$1** |
| **80 Strawberry Plants** | 4 " | **$1** |
| **8 Grape Vines** | 8 " | **$1** |
| **50 Sweet Chestnut** *or* **50 Catalpa Trees** | | **$1** |

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**J. L. DILLON,** Florist, Bloomsburg, Pa.

*containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.*

## Continued from p. 89.

**To use Straw Without Cattle.**—"W. R.," Vanderburg Co., Ind. Where stock are not kept, straw may be spread directly npon the fields and plowed in. It will do as much good in that way as in any other. The use of straw in manure is only as an absorbent, and to add bulk to it; it is not increased in value by putting it under the stock, except as that promotes decay.

**A Stone Rake.**—"A. D.," Richardsville, Iowa. The stone gatherer described in the *American Agriculturist* for July, is an excellent implement. The teeth are made strong, about 10 inches long, and not more than 5 inches apart and curved; if made of good iron this will answer as well as steel. The stones should be raked in rows, just as hay is raked by the horse hay rake.

**Ashes in a Poultry House.**—"F. S.," Brooklyn, N. Y. Wood ashes should not be used in a poultry house, excepting for the hens to dust themselves in, and then in a box or half barrel. But sifted coal ashes are an excellent thing to scatter in the house, and serve to deodorize and keep it clean.

**Cow Pox.**—"T. O. B.," Providence R. I. There is no cure for cow pox. It is a disease of the blood, and will run its course. Its severity may often be lessened, by giving one-onnce doses of hyposulphite of soda daily for a week, and one half as much for the second week. Keep the sores dressed with clean lard, and be gentle with the milking, as the udder and teats are very tender to the touch. An affected cow should be separated from the rest, and not be milked by the person who milks the others, lest the malady spread. The disease is known by hard lumps and scales upon the teats near the udder.

**Feeding a 6 Months' Old Colt.**—"A. G.," Portland, Me. In feeding young animals there is danger of over-feeding. A 6 months' colt may have one quart of oats daily and no meal. If fed meal it will bolt it and suffer from indigestion. Crushed oats may be given to advantage. If any meal or shorts is fed it should be mixed with cut hay; but until the colt grows older it is best to give long hay and whole grain, lest its digestion should become impaired. The ration of oats may be increased gradually, until the colt is a year old, when it may have 3 quarts daily.

**Clouted Cream.**—"A Reader," Neenah, Wis. The "clouted cream" spoken of in the January number, can only be made profitable when there are enough wealthy families and large hotels to purchase the product at a price per quart equalling that of butter per pound, then it may be produced at a saving of the cost of churning and manipulating the butter. It cannot be made in connection with a butter-dairy, except by dividing up the cream between the two products, or using it all for the clonting; there is no cream left for butter-making after this process is completed. There are no manufacturers that we know of who make apparatus for this purpose. The price obtained is about equal to that of butter made from the same amount of cream. Clouted cream is used on the table for the same purposes that ordinary cream is, and is by many preferred to that.

**To Preserve Eggs.**—"H. M. K.," Perrysburg, N. Y. To preserve eggs successfully, they should be taken when quite fresh, and packed immediately in a tub or vat containing a thick mixture of lime and water, or what is called "milk of lime," and kept in a cool place.

**Scurfy Pigs.**—"C. A. S.," Forked River, N. J. There are various causes for scurf upon the skin of pigs. Feeding with buckwheat, nestling in warm manure, or using any litter that tends to heat will cause it. It is a disease of the skin, and can easily be cured by removing the cause, washing the animal with carbolic soap and water, and giving a teaspoonful each of sulphur and cream of tartar every day for two weeks.

**Tarred Netting for Sheep.**—"P. O.," Barhour Co., Kansas. The tarred netting described in Stewart's "Shepherd's Manual," can be procured in England for about 8 cents a yard. H. H. Stoddard, Hartford, Conn., has light poultry nets, and could doubtless procure stronger ones fit for sheep penning. There is a wire mesh fencing-cloth, made in this country, which would probably serve the same purpose. Makers should advertise.

## Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, from our record kept daily during the year, show at a glance the transactions *for the month ending Feb. 12th*, 1879, and for the corresponding period last year:

1. TRANSACTIONS AT THE NEW YORK MARKETS.

| RECEIPTS. | *Flour.* | *Wheat.* | *Corn.* | *Rye.* | *Barley.* | *Oats.* |
|---|---|---|---|---|---|---|
| 28 d's *this* m'th | 337,000 | 2,131,000 | 1,314,000 | 58,500 | 429,000 | 431,000 |
| 23 d's *last* m'th | 315,000 | 2,249,000 | 921,000 | 68,000 | 137,000 | 405,000 |
| SALES. | *Flour.* | *Wheat.* | *Corn.* | *Rye.* | *Barley.* | *Oats.* |
| 28 d's *this* m'th | 345,000 | 7,316,000 | 4,104,000 | 383,000 | 290,000 | 1,107,000 |
| 23 d's *last* m'th | 267,000 | 6,109,000 | 3,051,000 | 279,000 | 307,000 | 768,000 |

2. *Comparison with same period at this time last year.*

| RECEIPTS. | *Flour.* | *Wheat.* | *Corn.* | *Rye.* | *Barley.* | *Oats.* |
|---|---|---|---|---|---|---|
| 28 days 1879 | 337,000 | 2,131,000 | 1,314,000 | 58,500 | 429,000 | 431,000 |
| 27 days 1878 | 381,000 | 3,611,000 | 1,731,000 | 67,000 | 504,000 | 537,000 |
| SALES. | *Flour.* | *Wheat.* | *Corn.* | *Rye.* | *Barley.* | *Oats.* |
| 28 days 1878 | 345,000 | 7,316,000 | 4,104,000 | 383,000 | 290,000 | 1,107,000 |
| 27 days 1878 | 351,000 | 3,976,000 | 2,874,000 | 203,000 | 476,000 | 581,000 |

3. *Stock of grain in store at New York.*

| | *Wheat.* bush. | *Corn.* bush. | *Rye.* bush. | *Barley.* bush. | *Oats.* bush. | *Malt.* bush. |
|---|---|---|---|---|---|---|
| Feb. 10, 1879 | 2,918,206 | 1,501,708 | 513,557 | 859,804 | 734,745 | 85,154 |
| Feb. 11, 1878 | 1,674,035 | 774,470 | 208,846 | 831,673 | 1,415,633 | 318,079 |
| Feb. 7, 1877 | 3,083,819 | 2,302,261 | 374,142 | 671,114 | 956,114 | 388,605 |

4. *Exports from New York, Jan. 1, to Feb. 10.*

| | *Flour.* bbls. | *Wheat.* bush. | *Corn.* bush. | *Rye.* bush. | *Barley.* bush. | *Oats.* bush. | *Peas.* bush. |
|---|---|---|---|---|---|---|---|
| 1879 | 31[illegible],000 | 4,417,000 | 2,821,000 | 412,000 | 1,217 | 19,100 | 32,000 |
| 1878 | 279,799 | 4,605,476 | 1,756,258 | 184,461 | 305,382 | 19,878 | 28,584 |
| 1877 | 153,588 | 1,276,859 | 1,793,888 | 53,533 | 71,283 | 15,309 | 66,191 |
| 1876 | 241,698 | 1,843,457 | 1,731,215 | 15,387 | — | 35,537 | 168,137 |

CURRENT WHOLESALE PRICES.

| | Jan. 11. | Feb. 12. |
|---|---|---|
| FLOUR—Super to Extra State | $3 20 @ 4 25 | $3 20 @ 4 25 |
| " Super to Extra South'n. | 3 25 @ 6 00 | 3 25 @ 6 25 |
| " Extra Genesee | 3 75 @ 5 50 | 3 90 @ 5 50 |
| " Superfine Western | 3 15 @ 3 50 | 3 15 @ 3 55 |
| " Extra Western | 3 60 @ 8 75 | 3 60 @ 8 75 |
| " " Minnesota | 3 60 @ 8 50 | 3 60 @ 8 25 |
| RYE FLOUR, Superfine | 2 65 @ 3 15 | 2 65 @ 3 15 |
| CORN-MEAL | 2 10 @ 2 80 | 2 10 @ 2 75 |
| BUCKWHEAT FLOUR, ℔ 100 lbs | 1 50 @ 1 75 | 1 60 @ 1 85 |
| BUCKWHEAT, per bush | 45 @ 46 | 49 @ 50 |
| WHEAT—All kinds of White. | 1 00 @ 1 12 | 1 00 @ 1 11½ |
| All kinds of Red and Amber. | 75 @ 1 11½ | 74 @ 1 11 |
| CORN—Yellow | 47½@ 64 | 45 @ 56 |
| " Mixed | 44½@ 48 | 42¼@ 47¾ |
| " White | 45 @ 52 | 45 @ 52 |
| OATS | 29 @ 36½ | 29 @ 37 |
| RYE | 55 @ 61 | 56½@ 62½ |
| BARLEY | 75 @ 1 25 | 70 @ 1 25 |
| HAY—Bale, ℔ 100 lbs | 30 @ 80 | 30 @ 80 |
| STRAW, ℔ 100 lbs | 25 @ 50 | 25 @ 50 |
| COTTON—Middlings, ℔ lb | 9¼@ 9⅝ | 9⅜@ 9⅞ |
| HOPS—Crop of 1878, ℔ lb | 5 @ 15 | 6 @ 15 |
| " " 1877, ℔ lb | 4 @ 6 | 4 @ 6 |
| " olds, ℔ lb | 2 @ 3 | 2 @ 3 |
| FEATHERS—Live Geese, ℔ lb | 35 @ 50 | 32½@ 47½ |
| SEED—Clover, West. & St. ℔ lb | 6¼@ 7⅜ | 6¼@ 7⅜ |
| " Timothy, ℔ bushel | 1 20 @ 1 30 | 1 20 @ 1 30 |
| " Flax, ℔ bushel | 1 40 @ 1 45 | 1 42½@ 1 45 |
| TOBACCO, Kentucky, &c., ℔ lb. | 2½@ 11½ | 2½@ 12½ |
| " Seed Leaf, ℔ lb | 3½@ 45 | 5 @ 50 |
| WOOL—Domestic Fleece, ℔ lb | 21 @ 39 | 22 @ 40 |
| " Domestic, pulled, ℔ lb | 22 @ 36 | 17 @ 36 |
| " California | 12 @ 26 | 10 @ 25 |
| TALLOW, ℔ lb | 6⅝@ 6¾ | 6½@ 6¾ |
| OIL-CAKE—℔ ton | — — @27 00 | 27 00 @ — |
| PORK—Mess, ℔ barrel | 7 45 @ 7 65 | 9 00 @10 75 |
| " Extra Prime, ℔ barrel | — @ — | — @ — |
| BEEF—Extra mess | 10 50 @11 50 | 10 50 @11 50 |
| LARD, in trcs. & bbls, ℔ 100 lb | 5 97½@ 6 25 | 6 90 @ 7 25 |
| BUTTER—State, ℔ lb | 12 @ 30 | 12 @ 27 |
| " Western, poor to f'cy, lb. | 8 @ 32 | 7 @ 30 |
| CHEESE | 3½@ 9½ | 3½@ 9½ |
| EGGS—Fresh, ℔ dozen | 24 @ 28 | 21 @ 23 |
| POULTRY—Fowls, ℔ lb | 5 @ 10 | 8 @ 13 |
| " Chickens, Penn., ℔ lb | 8 @ 11 | 9 @ 13½ |
| Turkeys—℔ lb | 6 @ 12½ | 10 @ 14 |
| Geese, ℔ pair | 90 @ 1 50 | 1 12 @ 2 00 |
| " ℔ lb | — @ — | 6 @ 10 |
| Ducks, ℔ pair | 45 @ 90 | 50 @ 90 |
| " ℔ lb | 9 @ 12 | 9 @ 15 |
| DUCKS, Wild, ℔ pair | 30 @ 2 00 | 20 @ 1 50 |
| GROUSE, ℔ pair | 50 @ 65 | 40 @ 60 |
| QUAIL, ℔ dozen | 40 @ 65 | 50 @ 90 |
| HICKORY NUTS—℔ bush | 2 00 @ 2 50 | 1 50 @ 2 00 |
| APPLES, ℔ barrel | 75 @ 2 25 | 75 @ 2 50 |
| GRAPES, ℔ lb. | 2 @ 7½ | — @ — |
| CRANBERRIES—℔ bbl | 6 00 @ 9 50 | 6 50 @ 9 00 |
| ORANGES, ℔ bbl | — @ — | 3 50 @ 6 00 |
| BEANS—℔ bushel | 1 25 @ 2 45 | 1 15 @ 2 60 |
| PEAS—Canada, in bond, ℔ bu | 72 @ 75 | 73 @ 74 |
| POTATOES, ℔ bbl | 1 87½@ 3 00 | 2 00 @ 3 00 |
| " Sweet, ℔ bbl | 2 00 @ 2 50 | 2 00 @ 2 50 |
| TURNIPS ℔ bbl | 50 @ 75 | 75 @ 1 00 |
| BROOM-CORN | 3 @ 5½ | 2 @ 5½ |
| CABBAGES—℔ 100 | 3 00 @ 7 00 | 3 00 @ 6 00 |
| ONIONS—℔ bbl | 1 75 @ 2 50 | 2 00 @ 3 50 |
| CELERY, per dozen | 50 @ 75 | 50 @ 78¼ |

Extraordinary ease in loans and discounts has been the prominent feature of the Money Market, which circumstance has served to stimulate business, especially in the speculative line, the activity having been most notable in Stocks and Bonds, and in Wheat, Corn, and Hog products. Cable advices have been rather adverse to the export movement in domestic produce, though, toward the close, of a more encouraging tenor.....Operations in Breadstuffs have been on a more liberal scale, in good part for export, and though prices have been variable, the market at the close was somewhat stronger. The inquiry from shippers has been largely for the better qualities of Red and Amber Wheat, Spring Wheat, old No. 2 Corn, new crop No. 2, Steamer Mixed, and No. 3 do., prime Rye, and low grade Extra Flour. White Wheat has been in much less favor. The speculative dealings in Wheat and Corn have been more extensive. Rye has been in unusually urgent request, almost wholly for the Continent. Barley has been very moderately sought after. Oats have been of readier sale, and, toward the close, have shown more firmness....In the way of Provisions, the feature has been the brisk speculative demand here and at the West for Hog products, which have been quoted decidedly higher, though closing more or less unsettled. Beef products have been inquired for to a moderate extent at about former rates. Butter and Cheese have been quoted rather weaker in price, on a restricted movement. Eggs declined materially, but closed more steadily... Hops have been without important change as to price, but have been less active, the export demand having fallen off perceptibly... Tobacco has been rather slow of sale, but held with a fair degree of confidence .. Wool has been in rather more request, though manufacturers have not been buying with much freedom. Prices have not varied materially....Seeds have been quoted steady. ....Hay and Straw have been moderately active within the previous range....Ocean freights have been variable.

### New York Live-Stock Markets.

RECEIPTS.

| WEEK ENDING | *Beeves.* | *Cows.* | *Calves.* | *Sheep.* | *Swine.* |
|---|---|---|---|---|---|
| Jan. 14 | 9,406 | 93 | 975 | 21,829 | 39,508 |
| Jan. 11 | 9,770 | 521 | 804 | 18,131 | 41,656 |
| Jan. 28 | 10,992 | 106 | 937 | 27,221 | 34,570 |
| Feb. 4 | 10,423 | 53 | 847 | 23,715 | 30,748 |
| *Total for 4 Weeks* | 40,591 | 773 | 3,463 | 90,896 | 146,482 |
| do. *for prev.* 4 *Weeks* | 40,374 | 490 | 4,443 | 87,946 | 175,564 |

| | *Beeves.* | *Cows.* | *Calves.* | *Sheep.* | *Swine.* |
|---|---|---|---|---|---|
| *Average per Week* | 10,143 | 193 | 866 | 22,724 | 36,620 |
| do. do. *last Month* | 10,093 | 122 | 1,111 | 12,986 | 43,891 |
| do. do. *prev's Month* | 9,533 | 164 | 1,695 | 23,325 | 52,904 |

The prices for the past four weeks were as follows:

| WEEK ENDING | *Range.* | *Larger Sales.* | *Aver.* |
|---|---|---|---|
| Jan. 14 | 7¼@10½c. | 7¾@ 9¼c. | 8¼c. |
| Jan. 21 | 6¾@11 c. | 8 @ 9¼c. | 8⅝c. |
| Jan. 28 | 7¾@10¾c. | 8 @ 9¼c. | 8¾c. |
| Feb. 4 | 7¼@10½c. | 8 @ 9½c. | 9 c. |

**Beeves.**—A gradual improvement has marked the course of trade the past four weeks, and the market closes active and with promise of keeping good the gain made, which was fully ¼c. per lb. At the close Kansas steers, 56 lb. to the 100 sold for 8¼@9¼c. per lb. Texans, same estimate, sold for 8c. per lb, and prime to choice steers of 57 to 58 lbs., brought 10c.@10¼c. per lb.... **Cows.**—With none but poor cows arriving, and no demand for good cows, trade has been anything but brisk, sales have been made at $35@$60 per head; the latter for prime milkers... **Calves.**—A good demand exists for all grades, and the supply being light, prices have stiffened, and close higher. Prices are 2¼@2¾c. per lb. live for grassers, and 5@7¾c. for fat milk calves. Hog-dressed are in demand at 9@9½c. per lb., and 10c. for the best.... **Sheep and Lambs.**—A heavy supply has run down prices and weakened the market, which closed dull at a loss of ¼c. to ½c. per lb.; prices being 4¾@6¼c. per lb. for fair to prime sheep and wethers....**Swine.**—The market closed firm at higher prices. Live hogs were in demand at 4@4¼c. per lb., and dressed at 5@5¼c.; light pigs were ¼c. per lb. higher, closing at 5¾c. per lb.

**The Horse Market.**—There is a confident feeling in the horse trade. The recovery of general business is expected to react favorably on this market, and dealers are laying plans accordingly. Extensive preparations are making to export largely the coming season; 13 fine coach horses have already gone out, which is beginning earlier than usual. A less demand is expected for car horses on account of the change in the modes of transit. Prices can not be expected to advance until a large stock is worked off, and improvement in the trade must be slow. Prices for all kinds are nominal.

### Prices of Feed.

| | |
|---|---|
| Bran, per ton | $18.00@$20.00 |
| Middlings, per ton | 19.00@ 21.00 |
| Ground Feed, per ton | 15.00@ 21.00 |
| Linseed-oil-cake, western, per ton | 44.00@ 47.00 |
| Cotton-seed-cake, per ton | 25.50@ 40.00 |
| Chandler's Scraps, per lb | 3@ 4 |

### Prices of Fertilizers.

| | |
|---|---|
| No. 1. Peruv. Guano 10 p. ct. ammonia, standard, ℔ ton | $56.50 |
| do. do. Lobos, do. do. do. | 47.50 |
| do. do. guaranteed, ℔ ton, cargo J | 56.00 |
| do. do. rectified, per ton, 10.20 p. c. | 69.00 |
| do. do. do. do. 3.40 p. c. | 51.00 |
| Soluble Pacific Guano, ℔ ton | 45.00 |
| Excelsior Fertilizer Works, Fine Ground Raw Bone, | 55.00 |
| Mapes' Complete Manure (clay soils) per 1,000 lbs | 25.00 |
| do. do. do. (light soils) per 1,000 lbs | 25.00 |
| do. Grass and Grain Top-dressing, ℔ 1,000 lbs | 25.00 |
| do. Fruit and Vine Manure, do. | 17.50 |
| do. Bone, strictly pure, meal ........per ton | 42.00 |
| do. do. do. medium...... do. | 36.00 |
| do. do. do. dissolved..... do. | 42.00 |
| do. Potato Manure ........per 1,000 lbs | 22.50 |
| do. Corn do. ........per 1,000 lbs | 23.75 |
| Stockbridge Corn Manure, per acre | 20.00 |
| " Potato do do | 10.00 |
| " Tobacco do do | 50.00 |
| " Rye do do | 10.00 |
| " Wheat do do | 15.00 |
| Bowker's Hill and Drill Fertilizer, per ton | 45.00 |
| Baugh's Raw Bone Phosphate, per ton | 33.00 |
| Baugh's Manure for Tobacco and Grain, per ton | 45.00 |
| Gypsum, Nova Scotia, ground, per ton | 8.00 |
| Nitrate of Potash (95 per cent.), per lb. | 9 @9½c. |
| Sulphate of Potash (potash 44 per cent) per lb. | 3 @3½c. |
| do. do. (potash 27½ per cent) per lb. | 1½@2 c. |
| German Potash Salts (potash 12 to 15 p. c. p. ton | $15.00@18.00 |
| Muriate of Potash (potash 50 per cent), per lb. | 1¾@2 c. |
| Nitrate of Soda, per lb. | 3¾c.@4¼c |
| Sulphate of Ammonia (25 per cent.), per lb. | 4¼c.@4¾c. |
| Dried Blood (ammonia 13 per cent) per ton | $40.00@45.00 |

**Home-Made Harrow.**—"W. H. S.," Payson, Ill. Good forms of home-made harrows will be found in back numbers of the *American Agriculturist*. Various forms of them are figured in nearly every volume of this journal, which "W. H. S." and others will do well to examine who are in want of almost any implement.

## Catalogues Received.

Very often a dealer offers articles in two very distinct branches of business—for example—seedsmen offer florist's plants or small fruits. In such cases, we place his catalogue under what appears to be the leading business, and mention the others. Where separate catalogues are issued, they are named under their respective heads.

SEEDSMEN.

Seedsmen, as a general thing, keep all kinds of horticulturists and florists' supplies, such as garden implements and fertilizers, frames for florists' designs, etc.

BEACH, SON & CO., No. 7 Barclay St., N. Y., besides the quarterly "American Garden," issue in the same form their regular and very full list of seeds and supplies.

BENSON, MAULE & CO., No. 223 Church St., Philadelphia.—This firm does a varied business; we have already noticed their catalogues in other departments, and can say that their list of seeds is full and up to the time.

B. K. BLISS & SONS, No. 34 Barclay St., N. Y., call their fullest kind of a catalogue, a "Hand-book for the Farm and Garden," and upon looking at its contents we do not dispute the title. They issue separately a report on the award of their premiums for Pringle's Hybrid Spring Wheats, which all wheat-growers should read.

WM. E. BOWDITCH, 645 Warren St., Boston. An illustrated seed catalogue which also gives greenhouse plants.

D. C. BRAINARD, Mt. Lebanon, N. Y.—A very full and well-illustrated "Amateur Guide to the Flower and Vegetable Garden."

ALFRED BRIDGEMAN, No. 876 Broadway, N. Y.—This, one of the very oldest of our seed houses, keeps up the reputation of one who was known to all New Yorkers as the leading horticulturist of his day. The catalogue offers the fullest variety of vegetable and flower seeds.

JOHN A. BRUCE & CO., Hamilton, Canada.—A very comprehensive and illustrated list.

WM. H. CARSON, No. 125 Chambers St., N. Y.—We have already noticed Mr. Carson's preliminary list of novelties. The present general catalogue offers all desirable vegetable or flower seeds, with full cultural instructions and is characteristically neat.

JOHN LEWIS CHILDS, Queens (L. I.), N. Y.—An illustrated list of half-dime packets of flower seeds.

COLE & BROTHER, Pella, Iowa, send us their seed list, which is as full of good things as usual.

CROMWELL & CONGDON, 51 Light St., Baltimore, Md., issue a "Combined Catalogue," which is really a volume. It is very full in seeds and implements, and offers florists' and nursery stock.

D. M. FERRY & CO., Detroit, Mich.—This, which is said to be the largest seed house in the world, issues a neat and modest catalogue, but as full as one could wish.

JAMES J. H. GREGORY, issues a catalogue different in shape from any other, and generally manages to have in it things not to be found in any other, besides all the usual seeds.—P. S. Mr. Gregory is at Marblehead, Mass.

E. M. HAVEN, Bloomingdale, Mich., offers vegetable seeds and plants of his own growing.

W. B. JONES, Birdsville, Ga., offers farm and garden seed, mostly of kinds suited to the Southern States.

A. W. LIVINGSTON, Reynoldsburg, Ohio.—The standard seeds and several specialties.

MANZ & NEUNER, Louisville, Ky., send a very full catalogue offering all kinds of seeds, bulbs, and florists' plants.

A. C. NELLIS, Canajoharie, N. Y., calls his neat catalogue, his "Floral Instructor."

GEO. W. PARK, Mt. Vernon, O., sends a catalogue of flower seeds.

W. H. SPOONER, Boston, Mass., calls his very neat and full catalogue of seeds a "garden guide."

WM. H. STERLING, Cutchogue, (L. I.), N. Y., offers farm and garden seeds and vegetable plants.

JAMES M. THORBURN & CO., No. 15 John St., N. Y., formerly issued separate catalogues of vegetable, flower, and other seeds. They now combine all in one comprehensive catalogue, which is wonderfully full, and offers a number of specialities in the different departments.

PRICE & KNICKERBOCKER, 80 State St., Albany, N. Y.—Very full list of seeds of all kinds, implements, etc., and well illustrated.

H. M. SMITH, South Sudbury, Mass.—Select list with novelties.

VANDERBILT BROTHERS, No. 23 Fulton St., N. Y.—As full and compact as usual, with illustrations of a large number of farm and garden implements.

DAVID R. WOOD, Morrisville, Vt.—A good selection of garden and field seeds.

NURSERYMEN AND DEALERS IN SMALL FRUITS.

J. W. ADAMS, Springfield, Mass.—Fruit and ornamental trees and a special strawberry catalogue.

G. L. ANTHONY, Greensboro, N. C., has a general assortment of fruits, including those specially suited to southern localities.

SETH A. BUSHNELL, Oberlin, Ohio, offers a number of specialties in apples, pears, etc.

CROSLY, GORDON & CO., Danbury, Ct.—A general collection of orchard and small fruits, ornamental trees, etc.

L. J. DENTON, Plainfield, N. J., Sends trade list with wholesale rates of general stock.

ROBT. DOUGLAS & SONS, Waukegan, Ill., give in their catalogue of trees and tree seedlings some useful information to planters. Their remarkable offer of young trees is noticed in the "Basket."

FERRIS, MINARD & CO., Poughkeepsie, N. Y., issue an abridged catalogue of their general stock with specialties.

"KISSENA NURSERIES."—PARSONS & SONS CO., Flushing (L. I.), N. Y.—A remarkable collection of new and rare plants, including many Japanese and other species not offered elsewhere, at home or abroad.

J. W. MANNING, Reading, Mass.—Fruit trees and plants, with several specialties.

KING & MURRAY, Flushing (L. I.), N. Y.—A wholesale

list from one of the oldest and best known establishments in the country.

WILLIAM H. MOON, Morrisville, Pa.—General stock and very full in ornamental trees and shrubs.

JOHN B. MOORE, Concord, Mass., favorably known as the originator of "Moore's Concord" Corn, and other specialties, offers small fruits, including several grapes and strawberrics, which originated with them.

JOHN PERKINS, Moorestown, N. J.—Fruit trees, vines, etc. Very full in strawberries.

E. P. ROE, Cornwall-on-the-Hudson, Orange Co., N. Y., offers a general stock of small fruits, with several specialties, and is as bright and readable as usual.

E. & J. C. WILLIAMS, Montclair, N. J., offer general nursery stock, with specialties in small fruits; they also sensibly encourage the taking of papers by receiving subscriptions for the *American Agriculturist*.

FLORISTS.

C. E. ALLEN, Brattleboro, Vt.—A general collection of greenhouse and bedding plants; also horticultural and rural books.

L. DENTON, Plainfield, N. J., sends us his trade-list of plants, which he offers at very reasonable prices.

DINGEE & CONARD Co., West Grove, Pa., call their catalogue "The New Guide to Rose Culture." It is certainly very full of new and old varieties of roses, which are sent by mail at very low rates.

GREENBROOK & PATERSON NURSERIES, Paterson, N. J., send a general list, a supplement, a special list of 50-cent collections, and a highly ornamental calendar.

C. H. HOVEY & Co., 22 Tremont St., Boston, Mass.—Greenhouse and bedding plants, including a number of novelties. Also vegetable and flower seeds.

LEEDS & Co., Richmond, Ind., publish a general list, including old as well as new plants.

LESTER STOCKTON, Cornhill via Anaganee, St. John, N. B.—A selection of very hardy plants suited to the severe climate of New Brunswick.

WOOLSON & Co., Passaic, N. J.—Hardy herbaceous and other hardy plants, including rare natives never before offered, as well as the newest hardy plants from abroad.

LIVE STOCK.

W. ATLEE BURPEE & Co., 221 Church St., Philadelphia, Pa., offer cattle, sheep, pigs, poultry, etc., and also reliable seeds.

J. T. LOVETT, Cornwall-on-the-Hudson, sends a list of his special strains of poultry and pigeons, with various poultry-keepers' appliances and foods.

MACHINES AND MISCELLANEOUS.

BAUGH & SONS, Philadelphia, Pa.—A descriptive catalogue of their mills for grinding grain, bones, phosphatic rocks, etc., for farmers' and manufacturers' use; also, a price-list of the fertilizers offered by this firm.

J. I. CASE & Co., Racine, Wis., under the title of "Almanac and Guide Book," give a full account of their threshers and steam and other powers, and convey much useful information besides.

INCUBATORS.—Prof. C. A. Corbett, New York. Newspaper notices and price-list of Corbett's Incubators.

J. L. MANLOVE & Co., Bentonville, Ind., make the "Manlove Self Opening Gate."

MEAD & TAFT, Cornwall-on-the-Hudson, make portable cottages, and figure and describe them in a pamphlet.

MERRIMAC MACHINE Co., Newburyport, Mass., describe their excellent "Monitor Seed Sower" in a circular.

DAYTON HEDGE Co., Dayton, O., send an illustration of the hedges they make, and a circular giving abundant testimony favorable to the work of the Company.

"THAT HOG OF MINE," is the unique title of a story by A. Hogg Rayzer, describing his troubles with swine before he used the hog-ringer of Hill & Co., Decatur, Ill.

THE HUB ALMANAC.—The Hub Publishing Co., 323 Pearl St., N. Y.—"The Hub" is a model among journals devoted to a special industry, and the Hub Almanac is, as might be expected, as much in advance of other special almanacs, as the "Hub" is ahead of its peers.

A. MCCREADY & BRO., New Galilee, Beaver Co., Pa., set forth the merits of their "Excelsior Churn Power," which appears to be an excellent machine for utilizing the generally worse than useless "dorg."

G. WESTINGHOUSE & Co., Schenectady, N. Y.—Illustrated list of their well known Threshers, Horse Powers, Sawing Machines, Steam Engines, etc.

FERTILIZER DEALERS.

BOWKER FERTILIZER COMPANY, successors to W. H. Bowker & Co., Boston and New York.—A comprehensive discussion on fertilizers; price-list and testimonials.

MATFIELD FERTILIZER COMPANY, Boston.—Description, price-list, and testimonials, of the Matfield fertilizers for special crops.

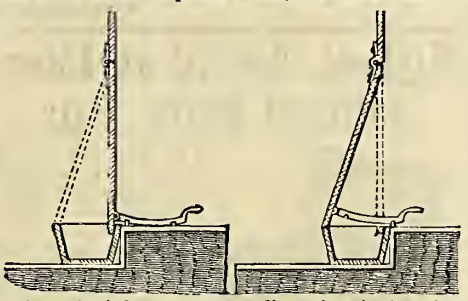
BAUGH & SONS, Philadelphia, Pa. High grade phosphates, and agricultural fertilizers and chemicals.

**Harrows.**—"A. W. K.," Jamestown, Dakota, and other inquirers, will find engravings and descriptions of strong harrows in the *American Agriculturist* for November 1876, December 1877, and January 1878.

**Moreton Farm Seeds.**—Joseph Harris, Esq., (who gives our readers "Talks on Farm Crops") raises a number of specialties in field, garden, and flower seeds. His catalogue, describing them and giving directions for cultivation, will be sent to all who will forward him (at Rochester, N. Y.,) a postal card giving full address and saying that his advertisement was seen in the *American Agriculturist*.

**Summer Fallow.**—"J. McG.," Linn Co., Oregon. We believe that you are quite right in keeping the land covered with some crop in a summer fallow, even if it be weeds. If all growth is kept down, the land gets only half the benefit of the "rest." Growing plants, that are again plowed under, add to the fertility of the soil. Nature's first step in manufacturing a soil is to cover the bare ground with plants, which, by their action in the soil and absorption of food from the air, soon make it suitable for the production of crops, and one can do no better than to follow nature's method of fallowing.

**Convenient Pig-Trough.**—"A. S. M.," Brookfield, Nova Scotia, has what he considers an improvement on the style of pig-troughs with swinging feed-doors in common use; the engravings were made from his sketches. The floor of the pens in this case being lower than that of the passage, the latch is quite out of the way. The latch is of 1 x ¾-inch iron, curved, as shown in the engraving, and fastened to the door by a staple; another staple, driven in the edge of the floor of the passage serves as a gnide for it to run in; a notch in its lower edge, at either end, fits over a catch in the floor, and holds the door open or closed, as desired. The advantage of this latch over the ordinary bolt is, that when the door closes by its own weight, after the feeding of the pigs, it is self-fastening. Mr. M. makes a good substitute for iron troughs by lining wooden ones with sheet-iron, the iron extending over the edges to prevent the pigs tearing it off or injuring themselves or its corners.



**Life Insurance—Trusting in Providence.**—A letter before us, from an old reader of the *American Agriculturist* in Michigan, thinks we do wrong in admitting Life Insurance advertisements—that such insurance implies want of faith in Providence, etc. Not at all, any more than laying up property beforehand for sickness, age, or disability, and that we judge he has done, in the good farm he owns. Every man having others dependent upon his continued life, whether friends or creditors, is under obligations to secure them so far as he can. The payment of a small sum annually to insure a large sum in case of death, would seem to be a duty, as well as a privilege. In the NEW YORK LIFE INSURANCE COMPANY, for example, some 45,000 persons unite together, each paying a small annual sum, and from the accummulations thus made, the families or creditors of those who die are provided for. Those who live on, get a value for their money every year, in the freedom from anxiety they enjoy. This Company, by the way, is one of the most valuable in our country. See their statement on page 109. A surplus of $6,500,000 to provide against all contingencies, as well as the successful business of the past year, in which the cash assets have risen from $34,452,905.29, to $36,837,295.23, are the strongest evidences of safety and good management. Send to the Company and get their documents discussing the principles of life insurance, etc., which will be furnished free.

**Experimental Fertilizers.**—Small sets of fertilizers, of known and exact quantity and composition and at a specific price, are of great value in enabling farmers to make accurate experiments. We hope several leading, trustworthy dealers will provide and offer them this year. We shall impartially favor all such efforts.

## Nuts and Nubbins.

Musicians should have sound judgment.

"Happy to meat you," said a polite butcher.

A peach always gravitates into a dealer's basket with the specked side down. Now, why is it?

A grocer advertises in the following terse manner: "Hams and cigars—smoked and unsmoked."

What is the difference between a hungry man and a glutton? One longs to eat, and the other eats too long.

Rasper, being told he looked seedy and asked what business he was in, replied: "The hardware business, look at my wardrobe."

The individual who called tight boots comfortable defended his position by saying they made a man forget all his other miseries.

Inspector to Grammar Class: "What is Syntax?" Answer by the child of a hard-drinker: "It is the government duty upon spirits."

A very fat man sent to the office for two seats in the coach for himself. The clerk engaged for him one seat outside and the other inside.

A celebrated philosopher used to say, "The favors of fortune are like steep rocks—only eagles and creeping things mount to the summit."

When an artist climbs over a fence to get a nearer view of a handsome bulldog, he must take the chances of his sketching the dog or the dog's ketching him.

"No," replied Mrs. Malaprop, slowly, "I can't say that I ever was in Dublin, but my mother has a second cousin called Irish who dealt in cork; so there!"

The older the seeds the more perfect the lady-slippers will be. And the older the banana peel the less graceful and the more perfect will be the gentleman slippers.

MAD.—The farmer who saw a neighbor take a $5 premium at the fair for the biggest pumpkin, and on coming home found he had one that weighed a pound more.

When a man reaches the top of a stairway and attempts to make one more step higher, the sensation is as perplexing as if he attempted to kick a dog that wasn't there.

A five-year old youngster, seeing a drunken fellow, said: "Mother, did God make that man?"—"Yes," she replied.—"I wouldn't have done it!" was the innocent's answer.

Agricultural papers are always harping on the intelligence of bees, but the drove of mosquitoes which waits at the key hole until the family are in bed, are passed over slightly.

Experience is a dear teacher, is it? Somehow the experienced hen always knows that the foraging in the next yard is the best, and she never paid a cent for the experience.

I wish you would not give me such short weight for my money," said a customer to a grocer, "and I wish you wouldn't give such long wait for mine," replied the grocer.

"How are you this morning?" said Faweett, the actor, to Cooke. "Not at all myself," returned the tragedian.—"Then, I congratulate you," observed Fawcett, "for be whoever else you will, you will be the gainer by the bargain."


**For Sale or to Lease.**

FURNISHED or UNFURNISHED.

**A Most Desirable Residence,**

**With City and Country Advantages;**

Located in a delightful New England City, on very high ground, overlooking most of the City, with splendid views in almost every direction. Educational advantages unsurpassed from Primary Schools up to the best College. Excellent Society, Spacious Mansion, Barn and Out-houses, large cold Grapery, Summer House, etc., etc.; 3½ acres of Ground. Terms low, and easy. For particulars, address "New England," care of *American Agriculturist*, 245 Broadway, N. Y.

**NORTH STAR SEEDS.**

Minn. Early Amber Sugar Cane, St. Paul and North Star Tomatoes, and other specialties of Northern origin and growth. Remember "the further north seeds are grown, the sooner the product will come to maturity."

Ours is the most northern seed farm in America. Earliest sorts a specialty. Catalogue free.

HOLLISTER, CASTLE & CO., St. Paul, Minn.

**H.W. JOHNS' ASBESTOS**

**Liquid Paints, Roofing, Boiler Coverings,**

Steam Packing, Sheathings, Fire Proof Coatings, Cements, &c. SEND FOR DESCRIPTIVE PRICE LIST.

H. W. JOHNS M'F'G CO. 87 MAIDEN LANE, N.Y.

SWEET POTATOES for sale and to sprout on shares. A premium offered. For terms and directions, address, ALFRED LEE, Kokomo, Ind.

**ASK YOUR WATCHMAKER FOR**

**AND NOT WEAR OUT.**

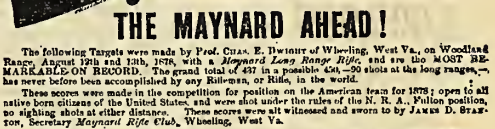
By mail 30c.—**AUTOMATIC** Eye Glass Holder, by mail 25c.—**Birch's Pat. Key Ring**, 10c.—Circulars free.

**J. S. BIRCH & CO., 38 Dey St., N. Y.**

**100** Embossed Pictures and Embossed Cards for 25c., or 25 Floral Chromo Cards 10c.

J. L. HYDE, Pomfret Landing, Ct.

**Maynard Creedmoor Rifle.**



**THE MAYNARD AHEAD!**

The following Targets were made by Prof. CHAS. E. DWIGHT of Wheeling, West Va., on Woodland Range, August 12th and 13th, 1878, with a *Maynard Long Range Rifle*, and are the MOST REMARKABLE ON RECORD. The grand total of 437 in a possible 450,—90 shots at the long ranges,—has never before been accomplished by any Rifleman, or Rifle, in the world.

These scores were made in the competition for position on the American team for 1878; open to all native born citizens of the United States, and were shot under the rules of the N. R. A., Fulton position, no sighting shots at either distance. These scores were all witnessed and sworn to by JAMES D. STARTOR, Secretary *Maynard Rifle Club*, Wheeling, West Va.

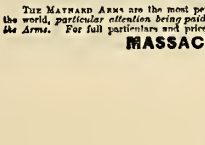
AUG. 12, 1878. 800 YARDS.

SCORE—5,5,5,4,5,5,5,5,5,5,4,5,5,4,5,—72

800 YARDS.

SCORE—5,5,4,5,5,5,5,5,5,5,5,5,5,5,—74

1000 YARDS.



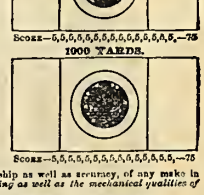
SCORE—5,5,5,5,5,5,5,5,4,5,4,5,—72

CREEDMOOR REGULATION TARGET, 6 x 12 feet, 3 feet Bulls-Eye.

AUG. 13, 1878. 800 YARDS.

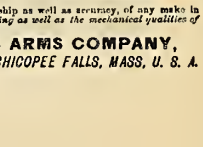
SCORE—5,4,4,5,5,3,5,5,5,5,5,5,5,5,5,—69

800 YARDS.



SCORE—5,5,5,5,5,5,5,5,5,5,5,5,5,5,5,—75

1000 YARDS.



SCORE—5,5,5,5,5,5,5,5,5,5,5,5,5,5,5,—75

THE MAYNARD ARMS are the most perfect in workmanship as well as accuracy, of any make in the world, *particular attention being paid to the fine shooting as well as the mechanical qualities of the Arms.* For full particulars and price list, address

**MASSACHUSETTS ARMS COMPANY,**

*CHICOPEE FALLS, MASS, U. S. A.*

WELLS, RICHARDSON & CO'S
PERFECTED **BUTTER COLOR**
**Gives Butter the gilt-edge color the year round.** The largest Butter Buyers recommend its use. Thousands of Dairymen say **IT IS PERFECT.** Ask your druggist or merchant for it; or write to ask what it is, what it costs, who uses it, where to get it. **WELLS, RICHARDSON & CO., Proprietors, Burlington, Vt.**

**POTATO AND COTTON BUGS.**
THE NEW INSECTICIDE. **London Purple.** (Trade Mark.)
Superior to and **one-third** the price of Paris Green. Manufactured only by HEMINGWAY & CO., 60 Mark Lane, London, Eng., New York P. O. Box 990, who will forward address of nearest dealer from whom supply can be obtained.

**AMERICAN VETERINARY COLLEGE.**
**Incorporated under the General Law for Incorporation of Colleges,**
*Chapter* 51, *Laws* 1870 — *Chapter* 319, *Laws* 1848.
**141 West 54th St., betw. 6th & 7th Avs., NEW YORK CITY.**
The fourth regular course of lectures will commence in October, 1878. Circular and information can be had on application to
**A. LIAUTARD, M.D.V.S.,**
**Dean of the Faculty.**

**BAUGH & SONS**
**No. 20 South Delaware Avenue, Philadelphia, And No. 103 South Street, Baltimore.**
WARRANTED PURE DISSOLVED
**ANIMAL BONES,**
**Acid Phosphate,**
**PURE BONE MEAL,**
**HIGH GRADE CHEMICALS,**
AND ALL OTHER
**Supplies for Fertilizers,**
furnished in any quantity, of our own Manufacture or Importation.
☞ All goods we sell are sold under a legal and binding guaranty, as to chemical analysis.

**DISSOLVED BONES,**
**Warranted Pure Raw Bone Meal, Dissolved with Acid,** and to be free from all other substances or mixture whatever. It contains over 10 per cent Soluble and Reverted Phosphoric Acid, and over 3½ per cent of Ammonia
☞ **This article is Guaranteed to be Raw Bone and Oil of Vitriol only.**
**"A NITROGEN"** (Trade Mark)—Pure flesh, containing 14 per cent of Ammonia—in fine mechanical condition for mixing in fertilizers as an ammoniate.
Prices of the above very low to meet the present depressed prices of farm products.
☞ Goods Delivered Free of Charge to any Wharf in Philadelphia. ☞ Prices promptly given by Letter.
**BAUGH & SONS,**
**No. 20 South Delaware Ave, Philadelphia.**

**Crescent Seedling Strawberries.**
at bottom prices of any one advertising in this paper; Great American, $3.60 per 1,000. Miner's Great Prolific, $10 per 1,000; Raspberries, Blackberries, Currants, Gooseberries Fruit Trees, etc. Send for Catalogue, and see prices.
**S. C. DE COU,**
**Moorestown, Burlington Co., N. J.**

**BRANDYWINE NURSERY.**
Write for Prices. Small Fruits, Osage, Asparagus, Trees, etc., and 4 liberal offers. Address, F. C. BIDDLE,
Chaddsford, Pa.

**2,000,999** *Strawberry, Raspberry, Blackberry, Currant, Grape-Vines, Asparagus Roots, Peach-Trees.*
**100 SELECTED VARIETIES.**
See page 117. *Genuine stock. Quality best. Prices lowest.* Send for free Catalogue to **JOHN S. COLLINS,**
**Moorestown, New Jersey.**

**Eureka Strawberry Huller.**
Sent by mail for 15 cents each; three for 40 cents. Address
**A. S. BUNKER,**
288 Common street, Lawrence, Mass.
Agents wanted.

**Ladies Purchasing CORSETS**
SHOULD EXAMINE
**Madam Foy's Improved CORSET SKIRT SUPPORTER**
☞ **For Health, Comfort, and Elegance of Form, it has no rival,** and is really the most perfect Skirt-Supporting Corset made. For sale by all leading dealers. Manufactured by **FOY & HARMON,**
**New Haven, Conn.**

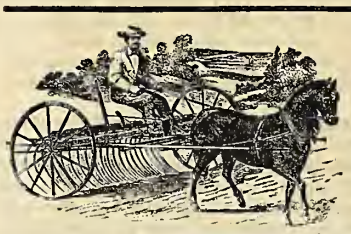
**DAIRY** APPARATUS AND SUPPLIES.
EVERYTHING required in FACTORY or DAIRY.
CHEESE and BUTTER MAKERS furnished.
Estimates for outfits sent on application. Correspondence invited. Circulars sent.
**G. B. WEEKS,**
**Syracuse, N. Y.**

**Highest Award at International Dairy Fair.**

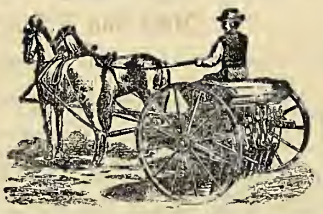
**The Higgin's Sweepstakes of $250** for best butter made in United States was awarded to Hiram Smith, Sheboygan, Wis.
**The Ashton Sweepstake of $125** for best butter made in U. S. or Canada was awarded Geo. Sidney Camp, Owego, N. Y.
The First Premium for best butter made in New York State was awarded J. S. Murray, Delhi, N. Y. All used the **COOLEY CREAMERS,** the cheapest dairy apparatus in use. Send for circular to
**VT. FARM MACHINE CO.,**
**Bellows Falls, Vt.**

**BUTTER AND CHEESE MAKERS** use the **Natural Butter Color;** it gives the June color to your Butter in winter, is harmless as salt, and adds from 5 to 10 cents per pound to its market value. Our Cheese Color is sold by the gallon, and we guarantee it. Write for Price-List.
**R. S. WHITE & CO.,**
**Fort Atkinson, Wis.**

*Jos.ª Gillott's*
**Steel Pens.**
*His Celebrated Numbers,*
**303-404-170-351-332,**
*and his other styles may be had of all dealers throughout the world.*
Joseph Gillott & Sons. New York.



Send for circular of our 20 (steel) Tooth Rake, with Locust or Iron Hub. Our celebrated Grain, Seed, and Fertilizing Drill, Victor Double Huller Clover Machine, and our Corn Fodder Crusher.
Applications for agency must be accompanied by recommendation of bank officer or clerk of county in which they reside.



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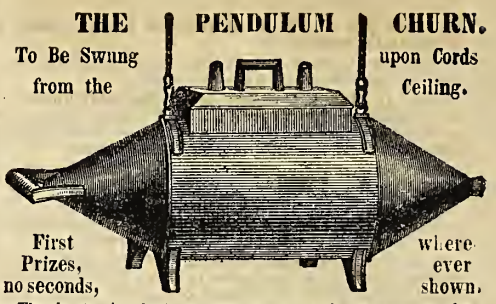

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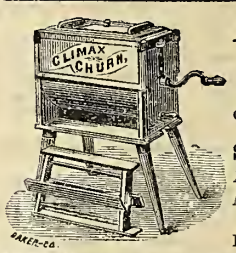


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If you want to get a churn, we will send you one to try, and if it gives entire satisfaction, you can remit us the price of the churn less the freight; and if not, you can return the churn to us, at our expense. Address
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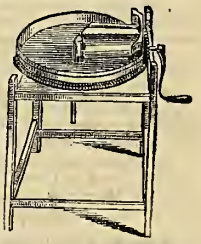

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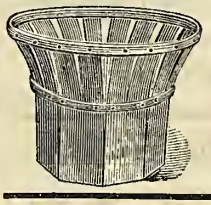

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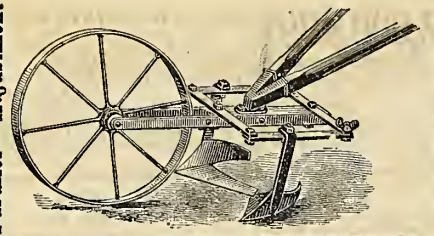

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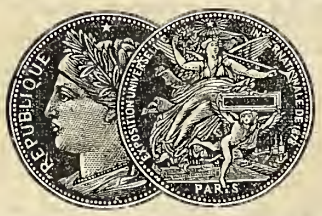


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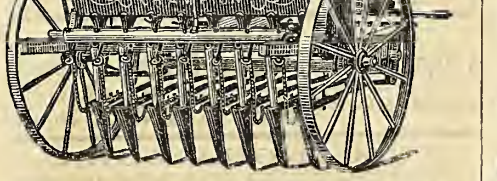

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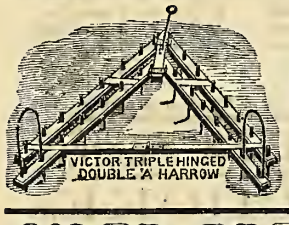


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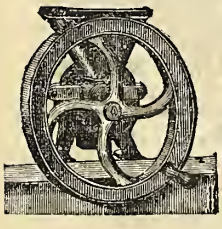

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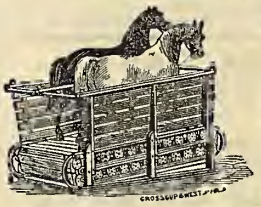

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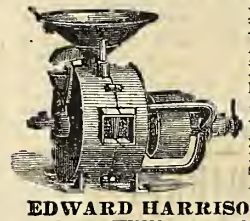
## HARRISON'S MILLS,
**NEWLY IMPROVED.**



New Standard Flouring Mill. New Standard Corn Mill.

Capacity of 12-inch Mill, 2 to 12 bus. per hour; capacity of Light 20-inch Mill, 6 to 40 bus. per hour.

Wholesome Bread, Fine Flour, High Speed, Quick Work, and Economical Milling Fully Established. For illustrated catalogue, describing the Harrison System, Address Estate of

**EDWARD HARRISON, New Haven, Conn.**
**(William A. Foskett, Administrator.)**

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## Big Giant Corn Mill,
Every Man His Own Miller.

The only Mill that will grind Corn with Shuck on without extra expense. The only Mill grinding Corn and Cob successfully that will grind Shelled Corn fine enough for family use.

Grinds twice as fast as any other Mill of same size and price.

MANUFACTURED BY
**J. A. FIELD, SON & CO., St. Louis, Mo., U. S. A., & Hamilton, Ont., Canada.**

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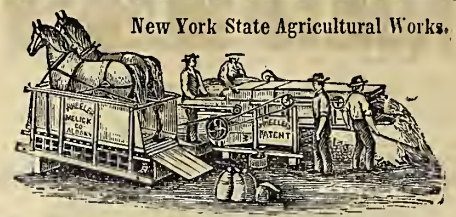
## MEDAL MACHINES.
New York State Agricultural Works.



**First Premiums at all Competitive Trials.**

**Railway, Chain and Lever Horse Powers, Threshers and Cleaners, Threshers and Shakers, Clover Hullers, Feed Cutters, Wheel Horse Rakes, Horse Pitchforks, Shingle Machines, Straw Preserving Rye Threshers, Portable Steam-Engines, Cider and Wine-Mills and Presses. Dog and Pony Powers, etc., etc.**

**WHEELER & MELICK CO.,**
**ALBANY, N. Y.**
Send stamp for Circular and report of Centennial trial.

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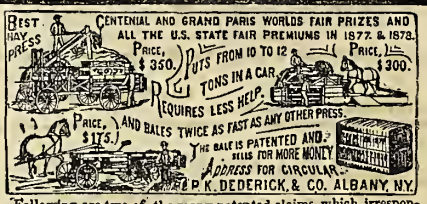


Following are two of the many patented claims, which irresponsible pirates, have in these columns, denied the existence of. This patent was not a continuous press.

Dederick patent Oct. 29, 1872; Reissued July 2, 1878;

CLAIM 2. In a press for balling hay or other loose fibrous material. The oblong quadrilateral bale chamber in combination with the press box and reciprocating traverser arranged at the end of said bale chamber, whereby the bales are built up endways as set forth.

CLAIM 8. As a new article of manufacture, an oblong, quadrilateral bale of hay, straw, or other loose fibrous material, built up in successive and separate compressed sections, transversely of the bale and bound together longitudinally of the bale, substantially as described.

We hereby warn the public, and forbid the use of this form of press, or the patent bale, except in machines of our manufacture.

Copies of patents furnished gratuitously to satisfy all.

All propositions to run two Hay Presses against one of Dederick's make, will meet the prompt attention of Dederick's employees, if communicated direct, to arrange preliminaries, and all such are accepted. Advertisments with holes in to crawl out, don't amount to anything, and are made to deceive the public.

N. B.—FOR SALE. New and second-hand, so-called *Economy* presses, which were transferred to us in settlement for infringement—the same having been made and used in violation of Dederick's patents. We reconstruct them so as to do fair work. Parties wanting low cheap presses, send for price.

---

## Nichols, Shepard & Co.,
**BATTLE CREEK, MICH.,**

Makers of the Original and only Genuine **"Vibrator" Threshers, Mounted Horse Powers, Steam Thresher Engines and Steam Outfits complete.** Illustrated Circulars sent free.

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**CHALLENGE FEED MILLS.**

Grinds three times as fast as any other mills. Always successful. Over 500 First Premiums and Medals. Over 15,000 in use. They do not clog or heat; grinds 60 bushels per hour. All successful Iron Feed Mills INFRINGING OUR PATENTS. Beware: Buy none but the best. Remember the Courts have sustained our Patents. Also the best Wind Mills, Corn Shellers, Horse Power Wood Saws, Fanning Mills, and Pumps. Address CHALLENGE MILL CO., Batavia, Ill.

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## Brick and Tile Machines.

A great variety, adapted to the wants of all, or made to order with special reference to location and clay.

Estimates given of works, construction of kilns, or samples of clay tested. For circulars address

J. W. PENFIELD, Willoughby, O.

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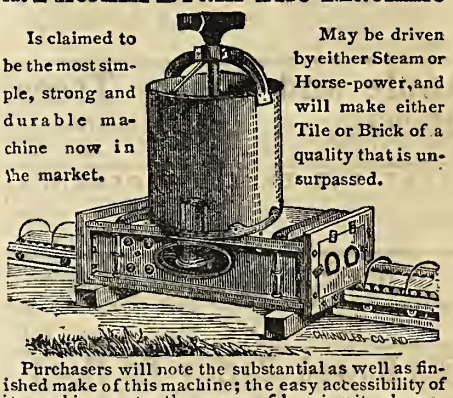
## The Phœnix Drain Tile Machine

Is claimed to be the most simple, strong and durable machine now in the market.

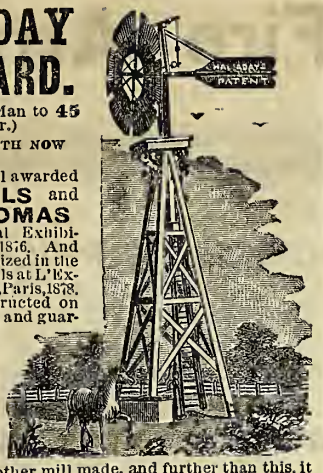
May be driven by either Steam or Horse-power, and will make either Tile or Brick of a quality that is unsurpassed.




Purchasers will note the substantial as well as finished make of this machine; the easy accessibility of its working parts; the means of keeping its plunge-chamber to fit closely, without reference to age or wear; and its general suitability for making Tile at the lowest cost. SEND FOR CIRCULARS.

**CHANDLER & TAYLOR, Indianapolis, Ind.**

# HALLADAY STANDARD.




(17 sizes—from 1 Man to 45 Horse Power.)

**$3,500,000 WORTH NOW IN USE.**

The only wind-mill awarded **TWO MEDALS** and **TWO DIPLOMAS** at the International Exhibition, Philadelphia, 1876. And the only Mill recognized in the distribution of Medals at L'Exposition Universelle, Paris, 1878.

This mill is constructed on scientific principles, and guaranteed to do good work in any kind of wind. It is also guaranteed to be well made of good material; to be perfectly self-regulating; to possess more power; to be more reliable in all kinds of winds, than any other mill made, and further than this, it **is Guaranteed NOT TO BLOW DOWN.**

Send for **CATALOGUE "A"** and Price List.

**U. S. WIND ENGINE & PUMP CO.,**
**BATAVIA, ILL.**

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**IRON SCREW WIND POWER,**
**With Corrugated Iron Fans.**

The only Wind-mill using a propeller-shaped wheel, by means of which the sail does its proportion of work at every point. Has an open center, is Vaneless, Storm-proof, and Self-governing. The Motion is ALWAYS STEADY, the Speed being Governed by the lever rod, and the mill DOES NOT STOP OR RUN ANY FASTER, NO MATTER WHAT THE GALE IS. Send for Catalogue for full particulars. Address.

POWELL & DOUGLAS, Waukegan, Ill.

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**10 FEET BANNER WIND MILL. $75**
**N. P. MIX, Avenue, Ohio.**

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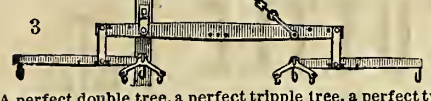
## Frederick's Pat. Equalizer.




A perfect double tree, a perfect tripple tree, a perfect two and three horse stretcher. Costs less than to iron the common double tree. Can't get a farmer to do without one. Weighs only 20 lbs. Can be attached to anything with or without a tongue. Ask your agricultural dealer about it, or send 3 cent stamp for testimonial.

**M. E. BUNGER & CO.,**
**Manufacturers, Indianapolis, Ind.**

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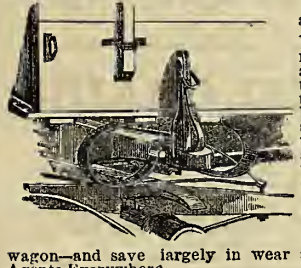
# SOMETHING NEW!

**PULLIAM'S PATENT**

## BOLSTER SPRINGS for FARM WAGONS.



This new and valuable device is suited to wagons of any size—made of the best steel and warranted—are attached by four bolts through the bed—can be put on by any person. They remain on the wagon for all uses, and work equally well whether with empty or loaded wagon. There is no use for a spring seat—they make a comfortable spring wagon out of a farm wagon—and save largely in wear and tear. We Want Agents Everywhere.

**SEMPLE & BIRGE M'F'G CO., St. Louis, Mo.**
S. L. ALLEN & Co., 229 Market St., Phila., General Agents.

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## LITTLE GIANT TILE MILL.

The body of mill is cast cylindrical, the strongest known shape. It is bored out and plunger accurately fitted. Having broad bearings, it prevents wear and mud leakage. The shaft is of forged steel, running on a brass box. The mill is accessible in all its parts. Two horses operate it with ease. We claim, extra strength, durability, and ease of working. Larger Tile can be made. More work with same power. Send for Circulars to **BAYLIES, VAUGHAN & CO.,** RICHMOND, IND.

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# Agricultural

## Insurance Company, of Watertown, N. Y.

Capital $200,000.00. Net Surplus, $201,939.97. Total assets for the security of Policy holders, January 1st, 1878, $1,058,157.60. Insures only Farm Property and Residences against fire and lightning. Takes no business risks.

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**250 MARYLAND FARMS,** in Tracts from 30 to 300 acres.

Near railroad and navigable Salt-water (with all its luxuries), in Talbot Co., Md. Climate mild and healthy. Titles good. New Pamphlet and Map showing *location*, free.
Address C. E. SHANAHAN, Atty., Easton, Md.

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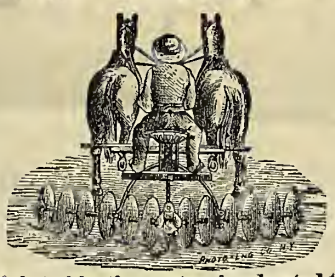
## La Dows Jointed Pulverizing & Smoothing
# DISC HARROW.

Light, Simple, Durable & Flexible.



**Being jointed in the center, is adapted to both smooth and uneven surfaces. Acknowledged the best of the kind, and will pulverize and cover seed better in one operation, than going over twice with others. Made with both Chilled Metal and Cast Steel Discs polished. Send for circular and price list. Manufactured by**

**WHEELER & MELICK CO.,**
**Albany, N. Y.,** for the United States, except New England.
EVERETT & SMALL, Boston, Mass.,
Manufacturers for the New England States.

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## Montgomery's Improved Rockaway Fan.

**222 First Premiums. 15 Silver Medals.**
**Gold Medal at Md. Institute in 1878,**
and 15 First Premiums at other Fairs.

No good Farmer can afford to be without one of these Fans! This universally known Fan has been victorious in every contest, and has the approval of thousands of Farmers all over this country. It is the best and cheapest Fan made for the farmer and planter. It is the only Fan that will effectually take out of wheat the great Virginia trouble "Partridge Pea." Prices reduced. Send for circulars and price lists to the manufacturers,

**DORSEY, MOORE & CO.,**
**68 S. Calvert St., Baltimore, Md.**
Manufacturers and Dealers in Standard Goods, Gen'l Agts. for **Cornell Shellers, Big Giant Corn and Cob Mills, Studebaker Wagons, &c.**

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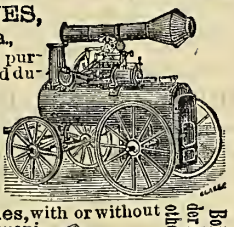
## STEAM ENGINES,

**A. B. FARQUHAR, York, Pa.,**

Cheapest and best for all purposes—simple, strong, and durable. Also *Traction Engines* for common roads.



SAW, GRIST AND RICE MILLS, GINS, PRESSES AND MACHINERY generally. Inquiries promptly answered.

Fig. 1.

Vertical Engines, with or without wheels, very convenient, economical and complete in every detail, best and cheapest Vertical in the world. Fig. 1 is engine in use. Fig. 2 ready for road.

Boiler and cylinder larger than other makers.

Fig. 2.

Send for Catalogue.

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**The Farquhar Separator**
(Warranted)

Penna. Agricultural Works, York, Pa.

Lightest draft, most durable, simplest, most economic l and perfect in use. Wastes no grain, cleans it ready for market.

Steam Engines, Horse Powers, Threshing Machines, Grinders, Saw Mills, &c.

Send for Illustrated Catalogue.
*Address A. B. Farquhar, York, Pa.*

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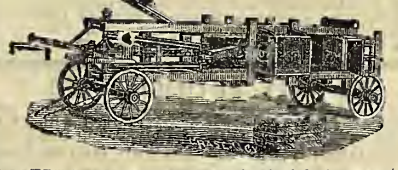
## Challenge Accepted.
## DOWN WITH HIGH PRICES.

Strictly Portable. Power & Press in one.



I ACCEPT the Challenge of Mr. Dederick, to operate my Economy Hay Press against the Improved Perpetual, as shown and described by him in the Nov. No. of THE NATIONAL LIVE-STOCK JOURNAL. The loser to pay all expenses and a $500 cash premium to the winner. Mr. Dederick will please advertise time. The contest to take place either at Camp Point, Keokuk Junction, or Clayton, in this State. Circulars sent free. **GEO. ERTEL, Quincy, Ill.**

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**FARM—72 Acres**—For Sale, To Let, or Exchange.—Located 2 miles from central part of City of Paterson, Passaic County, New Jersey, 19 miles from N. Y. City. Good arable meadow and timber land. Good farm house. Never failing spring of water. Abundance of fruits. Is an excellent dairy or milk route farm. Very desirable and healthful location. Terms very favorable To communicate with owner, call on, or address H. H. BOWMAN, 155 Broadway, N. Y.

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# LAWRENCE & TAYLOR,
## 76 Aldersgate Street, London, E. C.,
## ENGLAND,

receive Consignments of dairy and other agricultural Produce for sale in the **largest and best Market in the World.**

Commission:—For consignments under £50—4 per cent.
" " £100—3 per cent.
" " over £100—2 per cent.

Freight, etc., etc., paid free of charge for interest.

**Money Advanced on Consignments Without Interest.**
Account sales and cash promptly remitted.

**Bankers, National Provincial Bank of England.**
Telegraph Address—TAYRENCE, LONDON.

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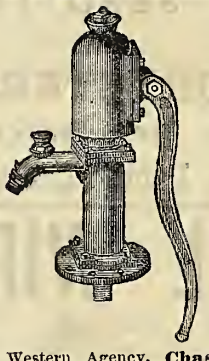
**W. S. BLUNT'S**
# Universal Force Pumps.

*Secured by letters patent.*

**THESE PUMPS HAVE RECEIVED THE "MEDAL OF SUPERIORITY," The highest award of the American Institute for 1878 over all competitors.**

These pumps have enormous power, and are for the house or for **out-door wells** of any depth. They are constructed with special regard to strength, ease of working, and durability. They can be immediately changed from lift to force pumps, and the air chamber can be revolved, so as to allow the handle to work at any desired angle with the spout. Having close tops, they cannot be tampered with. Attention is called to our new elegant pattern **DEEP WELL non-freezing FIRE PUMP. Also, Blunt's Sand Vacuum Chambers.**—A complete protection against sand or gritty water in **dug or driven wells, pits, mines, and rivers.** For **hand or steam pumps,** all sizes, from 1¼-inch to 4-inch suction pipe.



Send for circulars to

**NASON M'F'G CO.,**
**71 Fulton and 71 Beekman St. New York.**

Western Agency, **Chas. W. Newton,** 150 Lake St., **Chicago.**
Pacific Coast Agency, **Dunham, Carrigan & Co., San Francisco, Cal.**

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Established In 1840.

## Eureka Safety Power.

| *h.p.* | *cyl.* | *ht.* | *space.* | *wt.* | *price.* |
|---|---|---|---|---|---|
| 2 | 3½x4 | 48 In | 40x25 | 900 | $ 150 |
| 4 | 4x6 | 56 | 46x30 | 1600 | 250 |
| 6 | 5x7 | 72 | 72x42 | 2700 | 350 |

*Also* **Spark Arresting Portables,** *and* **Stationary Engines** *for Plantations.* Send for Circulars.

**B. W. PAYNE & SONS,**
**Corning, N. Y.**

Say where you saw this advertisement.

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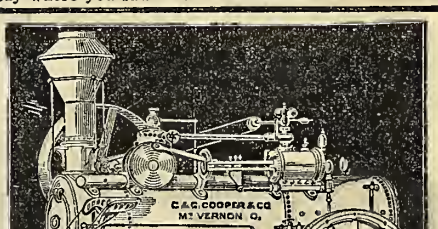


**The attention of Farmers, Threshermen, and responsible Live Agents, and Agricultural Implement Dealers in all parts of the Country is invited to our**

## Traction or Self-Propelling
# FARM ENGINES.

By a simple but reliable attachment made to our Common Farm Engines, we are able to offer a Traction, or Self-propelling Farm Engine, which not only propels itself, but hauls a Water Tank and Separator, or loaded Wagon, over any road, up hill, or down, with the aid of one pair of horses.

These Engines have been thoroughly tested three seasons. Three hundred of them are now in use, and they have not only proved a complete success, but have given such excellent satisfaction that, where introduced, it is with difficulty any other engine can be sold. They cost but little more than the common Farm Engine, and enable the threshermen to operate with from two to four less teams, and move much faster than with horses. They are simple in construction, easily handled, durable, and their advantages over the common Farm Engine are so apparent, *we are confident* they are destined to take the place of other Engines used for threshing, or for any use where the engine and machinery employed has to be frequently moved. Circulars containing cuts, description, prices, and testimonial letters from our customers, furnished free to all applicants. Agents and Dealers will readily appreciate the advantages this Engine offers them. **Agents wanted** in every County in all the States and Territories.

For agencies or circulars apply to

**C. & G. COOPER & CO., Mt. Vernon, Ohio.**

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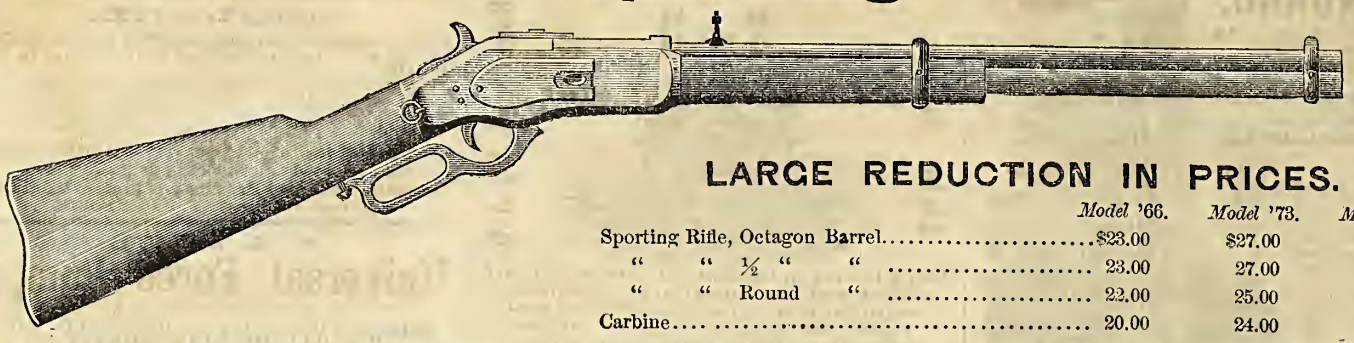
**FOR SALE AT A GREAT BARGAIN.**—A good 220-acre grain and stock farm in No. Indiana; all under fence and cultivation; 30 acres in Clawson Wheat; title perfect.
J. A. HUGHSTON, La Porte, Ind.

# Winchester Repeating Fire Arms.



LARGE REDUCTION IN PRICES.

| | *Model* '66. | *Model* '73. | *Model* '76. |
|---|---|---|---|
| Sporting Rifle, Octagon Barrel | $23.00 | $27.00 | $35.00 |
| " " ½ " " | 23.00 | 27.00 | 35.00 |
| " " Round " | 22.00 | 25.00 | 32.00 |
| Carbine | 20.00 | 24.00 | 27.00 |

☞ EVERY VARIETY OF METALLIC AMMUNITION AT THE LOWEST MARKET RATES. ☜

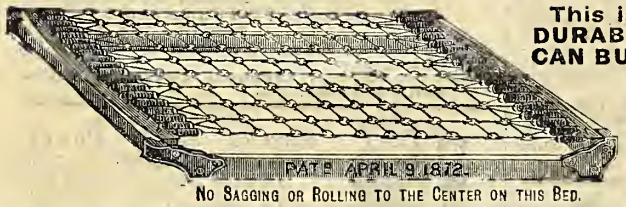
SEND FOR ILLUSTRATED PAMPHLET.

**WINCHESTER REPEATING ARMS COMPANY,**

**New Haven, Conn., or 245 Broadway, New York.**

Agent for the Pacific Coast, JOHN SKINKER, 115 Pine St., San Francisco, Cal.

# NATIONAL WIRE MATTRESS.




NO SAGGING OR ROLLING TO THE CENTER ON THIS BED.

**This is the very BEST and most DURABLE Spring Bed that MONEY CAN BUY. Do not confound it with any Woven Wire Mattress.**

The *American Agriculturist* for January, 1879, says: "Wire Bed Mattresses are among the best additions of recent inventions to comfort and rest, and they are quite as important to hard-working people, whether farmers or others, as they are to more leisurely people. We have practically tested different kinds, and are now enjoying one made by the National Wire Mattress Company, of New Britain, Ct. With its strength, durability, and elasticity, *we do not see how it can be improved.*"

☞ **Delivered to any R. R. Station in the U. S. or Canadas, free of charge, on receipt of $10.00.**

**Address NATIONAL WIRE MATTRESS CO., New Britain, Conn.**

This knife by mail 50c. Same knife, 1 blade, 85 cts., or 3 for $1.00.

**Every Knife made by MAHER & GROSH, Cutlers, Toledo, Ohio, is Hand-Forged from Razor Steel.** We replace any proving soft or flawy, **free.** With honest goods, at honest prices, we ask your trade. Will send by mail, postage paid, knife like cut, for 50 cts.; heavy 2 blade, 60 cts.; extra strong, 75 cts. **Our Best** heavy 2-blade, with extra finish, $1. Gent's fine pen-knives: 2-blade, ebony, 75 cts.; ivory, $1; pearl, $1.25; 3-blade, ebony, $1; ivory, $1.50; pearl, $1.50 to $5. Ladies' 1-blade 25 cts., 2 blade 50 cts. Boys' 2-blade 25 cts.

**PRUNERS.** Medium, 75 cts. **Our Best,** 8 inches long when open, every blade tested, oil temper, $1. Budding Knives: Ebony, 60 cts.; ivory, $1. Liberal discounts to Dealers, Granges, and Clubs. Circulars free. Address as above.

# TELEPHONES.

**For Business Uses.**

**Special Offer. OUR NEW IMPROVED DOUBLE COILED METALIC TELEPHONE is the finest in the world,** and the only completely satisfactory low priced instrument; with **Spring Call Attachment,** made by **practical machinists** on scientific principles; warranted to work **one mile,** unaffected by changes in the weather. We will send to one address **one sample set,** comprising two Telephones, two walnut bolders, six copper bound insulators and 200 feet heavy wire, at **25 per cent. discount from regular rates,** which is **$3,** for the **$4.** instruments. This offer is made for a limited time only, simply to introduce our instruments; they will soon be sufficiently well known to sell through the trade, and we shall then be obliged to strictly maintain the retail price. Any person of ordinary intelligence can put them up by following directions sent with each pair. We have sold during the last three months nearly **1000** of these instruments, and have **hundreds of testimonials** from all parts of the country. We **guarantee** all instruments sold. For any Telephone that fails to work, we will **refund the money** and pay all charges. Ask any Commercial Agency, and you will find we are good for all we agree to do. Postage 20c. Name this paper when you write. **Kent, Woodman & Co., 25 Congress St., Boston, Mass.**

# BARLOW'S INDIGO BLUE.

Its well-known excellence as a Wash-Blue commends it to every grocer as an article of sure sale. Housekeepers using it once will buy again.

**D. S. WILTBERGER, Proprietor,**
**No. 233 North Second street, Philadelphia.**

## REGALIN PRESERVING POWDER,

**FOR EGGS, BUTTER, FRESH OR SALTED MEAT, Etc.**

Perfectly tasteless, and preserves the color. Keeps the brine clear, free from scum, and brine and meat from sourning. So salted, it is in taste and flavor much sweeter than ordinary. Price 50 cts. per Box. Sent by mail to any address, postage prepaid. Agents wanted.

**C. AM ENDE, Hoboken, N. J.**

## THE YALE ARTIFICIAL LEG.

Pronounced by leading Surgeons and those who wear them to be the *best.* A perfect fit guaranteed without the presence of the patient. A descriptive pamphlet sent free. Address, **GEO. B. HOGGSON, New Haven, Conn.**

## HYDRO-CARBON LEATHER DRESSING.

Warranted to soften, preserve, black polish and make water proof. For all leather needing any or all of these qualities. Ask reliable dealers for it or send to

**A. D. STRONG, Manuf'ct'r, Ashtabula, O.**
**J. B. HALL, Western Agent,**
**No. 6 Board of Trade Court, Chicago, Ill.**

**SCROLL SAWS, LATHES, CLOCKS,** Mechanics and Farmers Tools. Catalogue free. Best goods in market at low prices.
JOHN WILKINSON, 77 State St., Chicago.

## Real Good White Shirts

**FOR 50 CENTS EACH.**

"From the Work-room to the Wearer." **Two,** or more, perfect fitting, open back, shield-shaped linen bosom, French yoke shirts, all ready to wash and wear, mailed post-paid, for **50** cents each. **One** sample shirt for 60 cents. Fine Linen Collars, unlaundered, 60 cents for six. Send size of collar worn and full address to

**NEWARK SHIRT COMPANY,**
**104 Montclair Ave., Newark, N.J.**

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The Latest and Best

## KNITTER

**For Family Use**

## In the Market.

**For Circular, Sample, and Full Particulars, Address**

LAMB KNITTING MACHINE Co.,
**Chicopee Falls, Mass.**

*World's* **ONLY** *Manufacturer of*

## WHEEL CHAIRS

Exclusively.—ALL Styles and Sizes for

**Invalids' and Cripples'**

Self-propulsion by use of hands only, in or out-doors. Comfort, durability, and ease of movement *unequalled.* Patentee and Maker of the "Rolling Chairs" pushed about at the Centennial. Send stamp for Illustrated Catalogue, and mention *American Agriculturist.*

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and **Stereopticons** of all kinds and prices.—Views illustrating every subject, for **Public Exhibitions,** etc.—*Profitable business for a man with small capital.* Also, **Lanterns** and **Views** for *Colleges, Schools, Churches, Sunday Schools,* and *Parlor Entertainments.* Send stamp for 74-page illustrated Catalogue.

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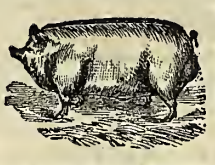

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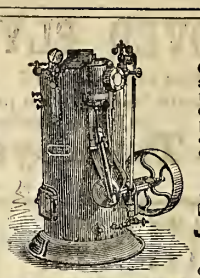

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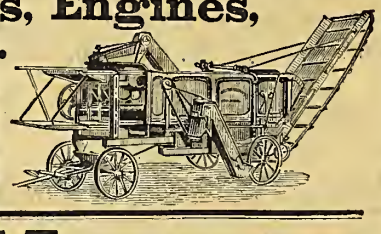

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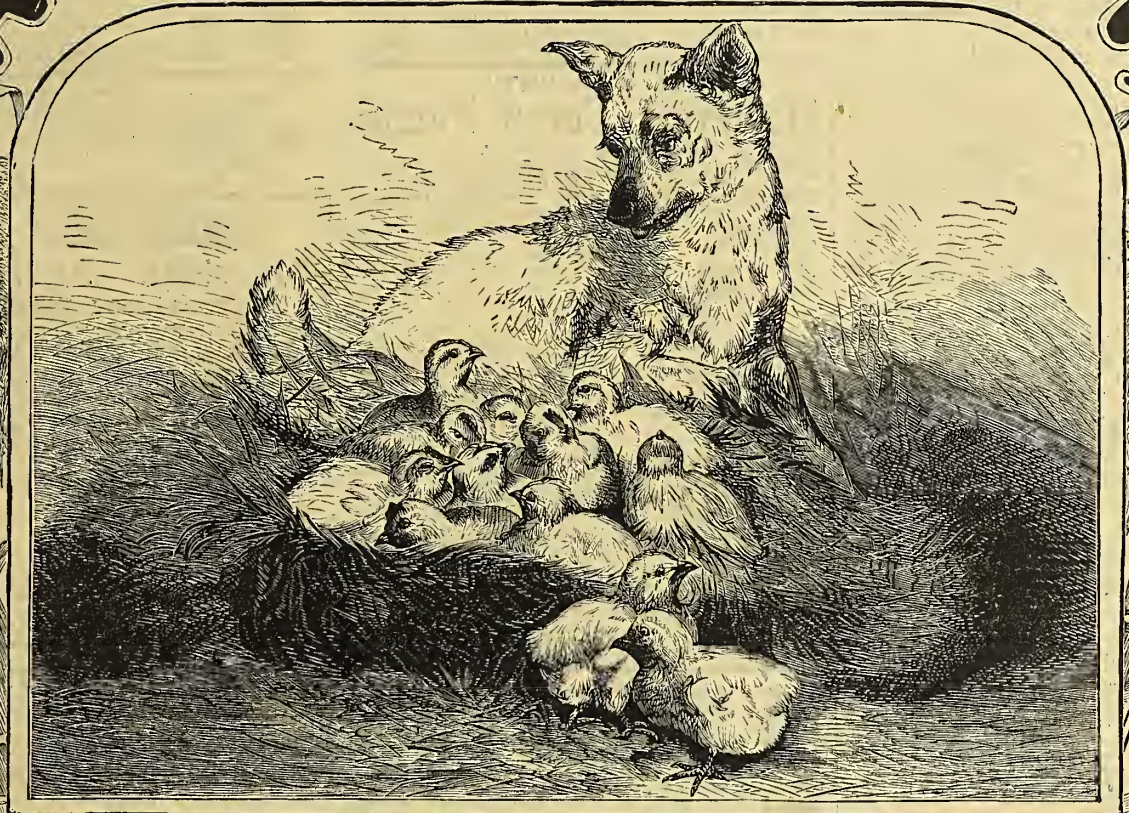
APRIL, 1879.

# AMERICAN AGRICULTURIST.

FOR THE FARM, GARDEN & HOUSEHOLD.



VOL. XXXVIII. NUMBER 4.

PUBLISHED BY THE
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It contains *all* the elements of **Plant-food** in the most

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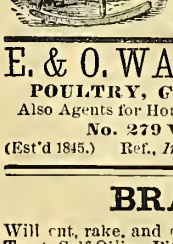

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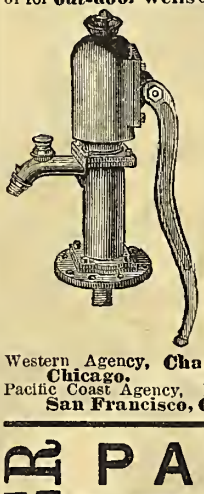

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# AMERICAN AGRICULTURIST

FOR THE

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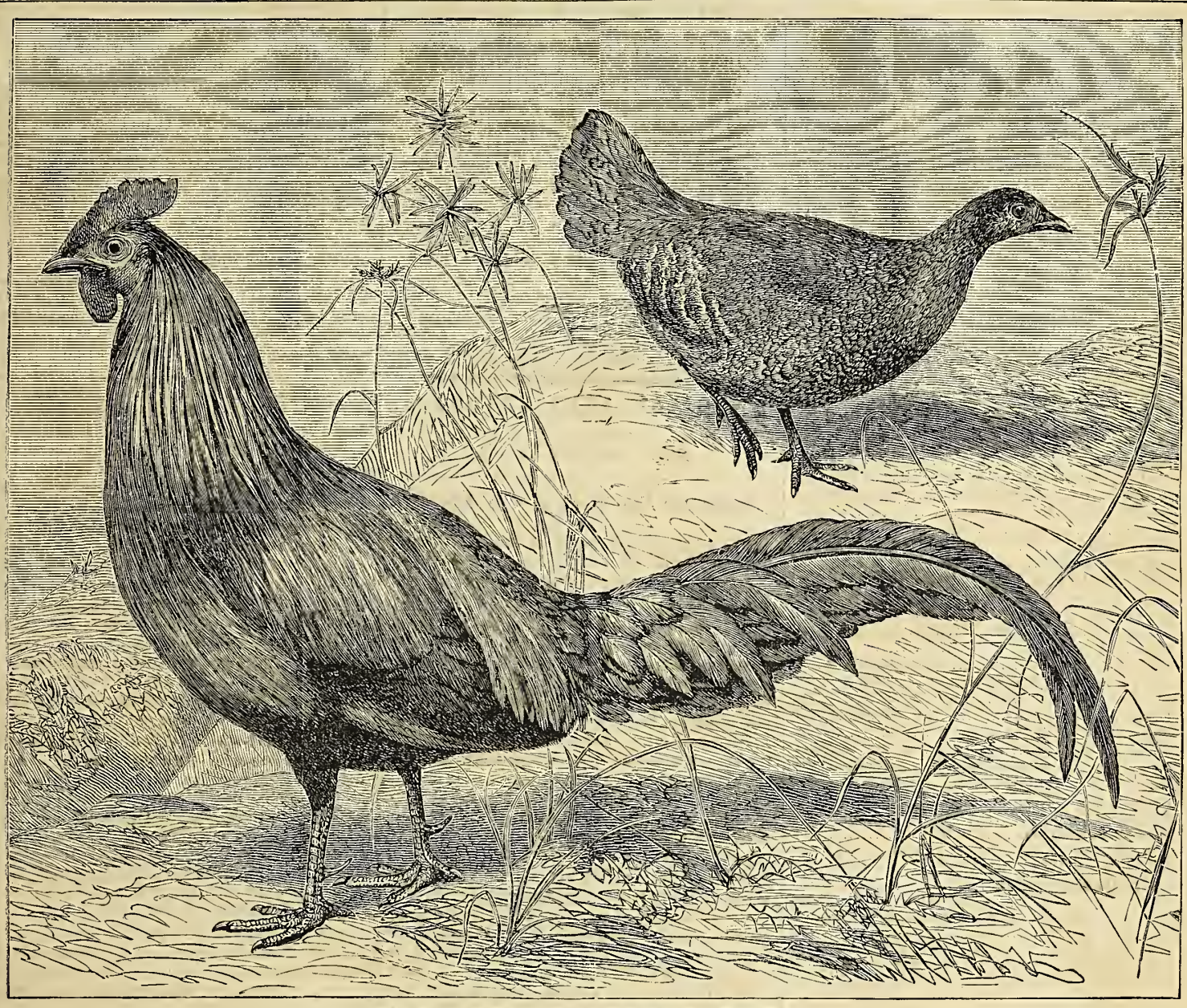

THE CEYLON JUNGLE FOWL.

The origin of our domestic animals is always an interesting subject, and the differences which have occurred through domestication and cross-breeding are well worthy of study. It is generally admitted that our domestic fowls have descended from the Jungle fowls of the East Indies, and the different species of game fowls still retain much of the shape, coloring, combativeness of disposition, and courage of the wild species. The Jungle fowls known to naturalists are four in number, and it is at present undetermined whether or not these species have a common origin, and if they have, which of the four species is the original one. The Indian Jungle fowl, *Gallus Bankiva*, bears the closest resemblance to our well known Black-red Game of all the four wild ones, and that fowl is regarded as the immediate parent of this variety, from which the several sub-varieties have been bred by crossing or by selection. Another species from Southern India, *Gallus Sonneratii*, is distinguished by the flattened shafts of the hackle feathers, and although it has been crossed extensively with domestic fowls, its progeny has been lost in the general mixing of new blood. It is now rarely known, except as the source of bright colored feathers which are in demand by the makers of artificial flies for fishing. The third species, *Gallus furcatus*, is known chiefly by its forked tail feathers and its brilliant metallic green shading; it has been crossed on the common fowl, but has left no special marks upon the races. The fourth, the subject of our illustration, and the rarest species, is confined to the Island of Ceylon, and has been seen in Europe only for four or five years past. It has no very marked characteristics, and is more like a common specimen of much-mixed "barn-door fowl" than any one of the other wild fowls. A general description of these fowls may given as follows: The adult male has striped and pointed feathers, which spread not only over the sides to form the hackle, but extend over the breast. The central saddle feathers are broad, brilliant dark-blue in color, and are edged with a slight fringe of orange. When young the cocks are but little different from the hens, the secondary wing feathers being barred transversely with bands of light and dark brown, and the neck feathers being streaked in a similar manner. As the males arrive at maturity the coloring becomes showy and brilliant, as is the habit with so many of the wild species of birds. The females are much like a Brown-red Game hen; the secondary flight feathers are strongly marked with alternate dark and light bars, and the breast feathers have a light center and margin. The young chicks have the three dark bands, one down the center of the head, and the others running backwards from the eyes, which are so common with the young of many of the domestic varieties. It is worthy of remark that these wild birds are very inferior to their domesticated descendants as table fowls, and in this respect they offer one instance, out of so many which we have, of the improvement which has been made by a systematic, long continued course of breeding.

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## Calendar for April, 1879.

| 1 Day of Month. | 1 Day of Week. | *Boston, N. England, N. York State, Michigan, Wisconsin, Iowa, and Oregon.* Sun rises. | Sun sets. | Mo'n sets. | *N. Y. City, Ct., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois.* Sun rises. | Sun sets. | Mo'n sets. | *Washington, Maryland, Virginia, Kentucky, Missouri, and California.* Sun rises. | Sun sets. | Mo'n sets. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | H.M | H.M | H. M. | H.M | H.M | H. M. | H.M | H.M | H. M. |
| 1 | T | 5 42 | 6 26 | 2 39 | 5 43 | 6 25 | 2 33 | 5 44 | 6 23 | 2 29 |
| 2 | W | 5 41 | 6 27 | 3 11 | 5 42 | 6 26 | 3 8 | 5 43 | 6 24 | 3 4 |
| 3 | T | 5 39 | 6 28 | 3 40 | 5 40 | 6 27 | 3 38 | 5 41 | 6 25 | 3 35 |
| 4 | F | 5 37 | 6 29 | 4 6 | 5 38 | 6 28 | 4 5 | 5 40 | 6 26 | 4 4 |
| 5 | S | 5 35 | 6 30 | 4 31 | 5 37 | 6 29 | 4 32 | 5 38 | 6 27 | 4 33 |
| 6 | S | 5 34 | 6 31 | rises | 5 35 | 6 30 | rises | 5 37 | 6 28 | rises |
| 7 | M | 5 32 | 6 32 | 8 3 | 5 34 | 6 31 | 7 59 | 5 35 | 6 29 | 7 55 |
| 8 | T | 5 30 | 6 33 | 9 24 | 5 32 | 6 32 | 9 19 | 5 34 | 6 30 | 9 14 |
| 9 | W | 5 29 | 6 35 | 10 42 | 5 30 | 6 33 | 10 35 | 5 32 | 6 31 | 10 29 |
| 10 | T | 5 27 | 6 36 | 11 50 | 5 29 | 6 34 | 11 43 | 5 31 | 6 32 | 11 37 |
| 11 | F | 5 25 | 6 37 | morn | 5 27 | 6 35 | morn | 5 29 | 6 33 | morn |
| 12 | S | 5 24 | 6 38 | 0 46 | 5 26 | 6 36 | 0 40 | 5 28 | 6 34 | 0 33 |
| 13 | S | 5 22 | 6 39 | 1 31 | 5 24 | 6 37 | 1 25 | 5 26 | 6 35 | 1 19 |
| 14 | M | 5 20 | 6 40 | 2 6 | 5 22 | 6 38 | 2 1 | 5 25 | 6 36 | 1 57 |
| 15 | T | 5 19 | 6 41 | 2 34 | 5 21 | 6 39 | 2 31 | 5 23 | 6 37 | 2 28 |
| 16 | W | 5 17 | 6 42 | 2 58 | 5 19 | 6 40 | 2 56 | 5 22 | 6 38 | 2 54 |
| 17 | T | 5 16 | 6 44 | 3 20 | 5 18 | 6 41 | 3 19 | 5 20 | 6 39 | 3 18 |
| 18 | F | 5 14 | 6 45 | 3 40 | 5 16 | 6 42 | 3 40 | 5 19 | 6 40 | 3 41 |
| 19 | S | 5 12 | 6 46 | 4 0 | 5 15 | 6 43 | 4 2 | 5 18 | 6 41 | 4 4 |
| 20 | S | 5 11 | 6 47 | 4 21 | 5 13 | 6 44 | 4 24 | 5 16 | 6 42 | 4 23 |
| 21 | M | 5 9 | 6 48 | sets | 5 12 | 6 45 | sets | 5 15 | 6 43 | sets |
| 22 | T | 5 8 | 6 49 | 8 22 | 5 11 | 6 46 | 8 16 | 5 13 | 6 43 | 8 11 |
| 23 | W | 5 6 | 6 50 | 9 22 | 5 9 | 6 47 | 9 16 | 5 12 | 6 44 | 9 11 |
| 24 | T | 5 5 | 6 51 | 10 20 | 5 8 | 6 48 | 10 13 | 5 11 | 6 45 | 10 7 |
| 25 | F | 5 3 | 6 52 | 11 12 | 5 6 | 6 49 | 11 6 | 5 9 | 6 46 | 11 58 |
| 26 | S | 5 2 | 6 54 | 11 57 | 5 5 | 6 51 | 11 52 | 5 7 | 6 47 | 11 46 |
| 27 | S | 5 0 | 6 55 | morn | 5 4 | 6 52 | morn | 5 6 | 6 48 | morn |
| 28 | M | 4 59 | 6 56 | 0 37 | 5 2 | 6 53 | 0 31 | 5 5 | 6 49 | 0 22 |
| 29 | T | 4 58 | 6 57 | 1 10 | 5 1 | 6 54 | 1 6 | 5 4 | 6 50 | 1 2 |
| 30 | W | 4 56 | 6 58 | 1 38 | 5 0 | 6 55 | 1 36 | 5 3 | 6 51 | 1 33 |

PHASES OF THE MOON.

| MOON. | | BOSTON. | N. YORK. | WASH'N. | OHA'STON | CHICAGO. |
|---|---|---|---|---|---|---|
| | D. | H. M. | H. M. | H. M. | H. M. | H. M. |
| Full M'n | 6 | 5 40 ev. | 5 28 ev. | 5 16 ev. | 5 4 ev. | 4 34 ev. |
| 3d Quart. | 13 | 9 25 mo. | 9 13 mo. | 9 1 mo | 8 49 mo. | 8 19 mo. |
| New M'n | 21 | 9 11 mo. | 8 59 mo. | 8 47 mo | 8 35 mo. | 8 5 mo. |
| 1st Quart | 30 | 9 32 mo. | 9 20 mo. | 9 8 mo | 8 56 mo. | 8 26 mo. |


# AMERICAN AGRICULTURIST.

NEW YORK, APRIL, 1879.


## Hints for the Work of the Month.

[*The Hints and Suggestions in these columns are never copied from previous years, but are freshly prepared for every month, from the latest experience and observations, by practical men in each department.*]

*These hints* are intended to suggest thoughts which may be made helpful in the study of farm work and the learning of the best practice, and not as a list of orders to do this or that at any particular time. A farmer who does not know his business would not be helped much by reading that in April oats must be sown or the ground plowed for corn, because in this wide country, oats are sown from January to May, and corn from March to June. We desire to give hints that will help not only the beginners, but the old farmer who must live and learn, because something new is occurring in farm practice every day.

*Top-dressing.*—An early top-dressing of artificial manure upon fall grain and grass fields is often of the greatest advantage. The ground is now moist and mellow, and the soluble fertilizers are at once ready to be utilized. We have seen the effect in the changed color of the foliage in twelve hours after an application, when a gentle shower has fallen immediately afterwards. If the fertilizer can be sown during a shower so much the better, otherwise we choose the afternoon for the work, so that the dew of the night may act as a rapid solvent.

*What Fertilizers to Use.*—For grass, 150 lbs. of Rectified Peruvian Guano per acre is often useful, and so may be the same quantity of complete grass manures made for this purpose. Those who cannot procure these easily, can use 100 lbs. of gypsum per acre, with 250 lbs. of fine bone dust and as many wood ashes as possible up to 40 bushels per acre. The German Potash Salts are a good substitute for ashes. For grain the prepared complete fertilizers, or Peruvian guano, bone dust, or superphosphate of lime may be used. Wood ashes never come amiss for any crop. See page 127.

*A Caution.*—Great damage may be done by using concentrated fertilizers in close contact with seed or very young plants. A teaspoonful of such a fertilizer dropped upon a seed or young sprouted grain will kill the germ, or the tender sprout or "growing point" of the plant. Any concentrated fertilizer should be *well mixed* with the soil or scattered very thinly over the surface, and unless it is raining at the time, should never be sown upon a growing crop while the leaves are wet. Common sense will guide a thoughtful man when he knows that most of these fertilizers are either caustic or corrosive, excepting gypsum, which is harmless.

*Harrowing Winter Grain* is a practice now generally adopted, and there are many good harrows made especially for this purpose, with teeth that slope backwards, or that may be reversed for ordinary work. Harrowing after applying fertilizers or sowing grass or clover seed is doubly useful.

*Sowing Clover.*—From considerable experience the writer prefers to delay sowing clover until the ground has become settled and the weather warm. A warm spell earlier may start the seed and a strong frost afterwards kill the young germs. Our present agricultural practice must be no longer carried on by "rule of thumb" or in the old hap-hazard backwoods fashion. We have "a hard row to hoe" now and must make use of the very best methods by which every seed must count and every hour's labor be made effective.

*Fodder Crops.*—No farm where animals are kept can be profitably worked without a provision for some green fodder, such as oats, oats and peas mixed, oats and barley mixed, or other crops to be sown later. Earliness is indispensable, and the first work of this month should be to prepare the ground and sow seed for fodder. The leafiest kind of oats should be chosen; New Brunswick, Excelsior, and Probsteier oats have a good stalk and leaf, and answer well for this purpose. But two crops can be grown at once and a double yield secured by sowing two kinds of seeds. Thus 1½ bushels each of oats and Canada peas sown together, will yield as much fodder on good soil on one acre as the same seed sown separately on two acres. So with oats and barley mixed, and other mixtures which should be studied and experimented upon.

*Spring Wheat* should be sown as early as possible, and so should oats. These grains need a long season to develop their full growth. Some new varieties of wheat are very promising, and should be tried in a small way as a test. No one should risk his whole crop on any new and untried variety. As wheat does not mix in the field, a new variety may be tried in a strip with other kinds, without risk of mixing the varieties.

*Soft and Hard Wheats.*—The millers are generally opposed to what they call "soft wheats," and refuse to pay full price for them. This may be a just discrimination, because hard wheats are more profitable to them. But it may be better to grow 30 bushels per acre of soft wheats, (which is generally more prolific than the hard varieties) at 60 cents a bushel, than 20 bushels of hard at 70 cents. So that the soft, prolific kinds may be the more profitable and millers and farmers both be satisfied.

*Oats.*—From 50 to 60 bushels of oats should be the least satisfactory yield, and the aim should be to have the ground in a condition to produce this instead of the 25 or 30 which is now a usual harvest. The whole secret is in the fertilizing of the soil.

*Barley* should not be considered as merely a material for brewing. There is no better grain for horses, and barley-meal with corn or potatoes is excellent for cows and pigs. The two-rowed variety yields more than the six-rowed, but the six-rowed brings 10 cents more from the malsters. Two-rowed is the better for fodder purposes also. For a good yield of barley the soil must be fine and rich, otherwise oats should be sown.

*Peas* may be made profitable where the green pods can be sold in the market and the straw cut for fodder. As nearly all our native grown seed is half spoiled by the weevil, seed from Canada, or other localities free from it, should be procured. Peas may be sown with a grain drill by stopping every alternate spout, and may be cultivated with the grain horse-hoe (described in the *American Agriculturist*, August, 1878).

*Cultivating Small Grains.*—The practice of cultivating small grains, oats, barley, wheat, and peas,

will become general as soon as the advantages are well understood. The cultivator or horse-hoe made for this purpose may be used for corn, roots, and potatoes, as well as for the small grains.

*Plowing for Mangels or Beets.*—Mangels and sugar beets should be sown next month. But the ground needs such thorough preparation that this work should be begun in April. A corn or potato stubble may be chosen, manure spread and plowed in and the ground harrowed and rolled if needed, until perfectly mellow. Two plowings are advisable, the first, deep, if the soil is stiff.

*Potatoes.*—Experience with the Colorado beetle, should prompt the early planting of potatoes ; also abundant manuring and good preparation of the soil. The latter often doubles the crop. An extra 100 bushels of potatoes per acre is well worth working for. It does not pay to plant large seed. Small, well-ripened seed will be the most profitable when its cost is considered. After much observation, the writer finds no difference in the crop from small and large seed. Of course there is a limit, and potatoes as small as hickory nuts are not referred to.

*Carrots and Parsnips*, as field crops, are not to be recommended, unless for sale, when we can grow sugar-beets and many varieties of mangels with half the trouble of cultivating and harvesting. If carrots are desired by dairymen for special purposes, they might try as a substitute, the yellow or orange-globe or egg-shaped mangels, the red beets or the early blood turnip beets which come in for early fall and winter feeding.

*Flax.*—This crop promises to become a staple, East as well as West, as flax manufacturing is becoming established. Low, moist ground, newly cleared swamp or meadow-land suits flax exactly. In the West, fresh prairie is suitable. 1 bushel of seed per acre should be sown this month.

*Raising Calves.*—To purchase improved stock, requires much money. But the same result may be gained by keeping a well selected bull and raising the heifer calves with care. Calves will thrive well when taught to drink from the pail the third day. It is well for them to suck the cow and soften the udder, for three or four days.

*Sheep.*—Lambs and sheep intended for sale should be pushed as fast as possible with safety. But most haste in this respect often secures least speed. Ewes that have raised lambs and that are to be sold, should be fed so as to be out of the way by June.

*Cows.*—There is no better feed as a steady diet for cows, than grass; but there may be eases in which some stimulating food may be used with benefit. Early grass is not healthful, being immature and too laxative. It would be better to follow the old English practice in this respect, and not turn cows to grass until May. May-day is an ancient farmer's holiday on this account in England, and we might well follow their practice. This, of course, refers to localities with the same seasons—earlier at the south, and even later at the far north.

*Horses.*—As the coat begins to loosen, the skin is often irritable. This may be corrected by giving in the food daily one ounce of an equal mixture of sulphur and cream of tartar for a few days. Good grooming with a soft brush and a blunt curry-comb should not be neglected. If the gums are swollen, rub them with a corn-cob dipped in powdered borax. Cleanliness is a great preventive of disease. As the weather becomes warmer, more oats, rye, or barley, and less corn may be fed. An occasional feed of cut ruta-bagas will be useful.

*Brood Mares.*—As foaling approaches, brood mares should be turned into a loose box. The extra exercise is beneficial and they rest more at ease. Their work should be lightened. The most gentle treatment should be exercised; the temper of the colt often depends upon this.

*Pigs.*—Pork is looking up, and pigs are worth more than they were a few months ago. While prices are low, the cost of feeding should be reduced. Pigs can be kept most cheaply upon grass in summer, and an orchard is a good place for them ; they will do service in destroying insects.

*Sundry Matters.*—Poultry should be kept free from vermin; dig up the ground in the runs and clean the houses and so escape gapes. Provide good coops for young chicks, and let them run in the garden or orchard. Clean up everything about the house and barns and burn the rubbish ; numerous eggs and chrysalids of insects will be burned with it. Put all the tools and implements in order, and whitewash pig-pens, poultry-houses and sheep-pens. Look well to fences before cattle find the weak places; if these are once found, they are always dangerous. Pile up all loose manure ; it may thus be made into good condition for corn or roots next month. As the weather becomes warm, use plaster freely to deodorize yards, stables, and pens ; it does a double duty when thus used. Clear the outlets of drains, and repair washed roads.

## The Orchard and Garden.

Not having space for the few general Notes on the work of the horticultural departments usually given here, we commend the readers to those of last month. They are quite as timely now as then, and have lost none of their importance.

### Orchard and Nursery.

The preliminary work as indicated in these columns for the last two or three months, will, in many localities, be yet in order. We have advised ordering trees early, and if they came to hand before the proper time to plant, it was advised to *heel them in, i. e.*, to set them temporarily in trenches, where they will be safe for some time, until they can be planted....In many cases trees have to make a long journey from the nursery to the purchaser, and

*Trees in transportation* are liable to injury, in spite of the skillful packing of the nurseryman. If detained on the road, they may dry out and, when opened, present a dead and shriveled appearance. No matter how unpromising they may look, they can probably be restored. First look to the labels, and see that they are all well fastened ; then open a trench in a dry sandy place, and bury the trees root and branch, taking care that the moist earth comes well in contact with the branches and twigs to the very top. A week or less of this treatment, unless the trees were absolutely dead, will completely restore them. Be very careful, in taking them out, not to lose labels or break the twigs. ....Another danger is overheating, causing the

*Buds to start into growth.*—The uppermost buds may have weak white shoots some inches long, the lower ones shorter shoots, while farther down on the branches the buds will still be dormant. In this case, the branches must all be cut back to a sound bud. The needed severe cutting may not leave much of the tree, but it is the only remedy.

*Cutting Back at Planting.*—The novice at tree-planting can not see why he should not set all that the nurseryman gives him. So he might, did the nursery give him all that belongs to him. Even with the greatest care, some roots must be cut off, but in hurried work the tree is deprived of one-third to one-half of its roots. It then becomes a matter of necessity to cut back the top, that there may be a proper proportion of root and branch.

*Do not Hurry* tree-planting. If the ground is not dry and mellow, let the trees wait. The land being marked out, and the place for each tree staked, take sufficient time to plant each tree properly; this means spreading the roots; covering them gradually with top soil, working this well in among the roots, firming the soil gently with the foot—not trampling it—then when the filling is completed press down the soil firmly again.

*Stakes* are not needed if a tree is well set, unless it is of very large size. Many water the roots at planting, but this is unnecessary except late in spring when the ground has become somewhat dry.

*Mulching* is always needed, to keep the soil around the roots moist. Straw, poor hay, stable litter, chips, or whatever will prevent evaporation.

*Grafting* succeeds best with perfectly dormant cions set upon stocks, the buds of which have commenced to swell. Full details are given in the number for April, 1877, which may be had for 15 cents.

*The Cankerworm*, in localities where it is troublesome, appears as soon as the ground thaws. The female, being wingless, can not fly, and when she leaves the ground has to climb up the trunk to lay her eggs. All "remedies" consist in presenting some barrier to the ascent of the female. Contrivances are numerous ; the simplest is a band of heavy brown paper around the trunk, smeared with tar or printer's ink, and looked to every few days.

*The Tent Caterpillar.*—Before the trees leave out, they should be carefully inspected for the eggs of this insect. They are in a band about an inch long near the ends of the small twigs, and are readily seen against the sky. Cut and burn.

*Mounds of Earth* that were made around young trees last fall to keep off mice, should be leveled.

### The Fruit Garden.

The fact that one has not a plot of land to set apart for a fruit-garden, should not prevent his having an abundance of small fruits. While it is better on many accounts to have separate gardens for the vegetables and the small fruits, cultivate them together rather than be without either. Last month we noted the standard varieties. Nearly all of the small fruits start early, and should be planted as soon as the soil is in good condition. Distances apart to plant the kinds were given last month.

*Strawberries.*—Uncover them, merely separating the straw over the plants, and exposing the leaves to the light and air, leaving the soil covered. Set plants early, that they may get well established before hot weather. Plants set now will give a full crop next spring, but not before. They are sometimes used for an edging in the vegetable garden.

*Currants.*—If not pruned last fall, do it at once, cutting out branches where they are crowded, and shortening the new wood. Manure abundantly. If the soil is light and dry, cover it with coarse litter.

*Gooseberries.*—Give same treatment as currants.

*Grapes.*—If any were left unpruned last fall, prune at once. Plant vines early. See article on page 145.

*Raspberries.*—If tender kinds were covered last fall, take them up and tie to stakes or trellis.

### Kitchen and Market Garden.

*Plants Wintered in Cold Frames.*—These are set out just so soon as the soil can be worked, as described last month, and the sashes from the frames are used upon other frames, to hasten forward a crop of lettuce. As soon as the lettuce is cut, cucumbers come on in the frames, and their early growth much forwarded ; thus the sashes pay.

*Plants under Glass.*—Those from seeds sown this spring, whether in hot-bed, cold-frame, or window boxes already described, need care to prevent them from being drawn up and weak. This is done by transplanting and giving more room, and by exposing the plants every mild day. Tomatoes that have been transplanted into flats or boxes, are helped by root pruning. This is done by drawing a knife through the soil, midway between the rows of plants each way. If this is done two or three times, each plant will have its compact little ball of roots.

*Window Boxes* containing vegetable plants, may be set out during mild days, and when it may be done without risk of frost, be left out all night.

*Sowing Seeds.*—The distinction given last month between *Hardy* and *Tender* Vegetables should be kept in mind. It is very easy to remember whether a given vegetable belongs to one of two classes.

*Hardy Vegetables* can be sown everywhere so soon as the soil is dry enough and heavy frosts are over.

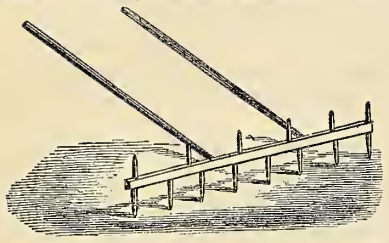
*Tender Vegetables* should wait until the soil is not only dry but *warm*, and the danger of all frosts is past. This is fixed for every neighborhood by the observations of farmers who have learned at what date it is, on the average, safe to plant Indian corn. As corn is a tropical plant, and quite as tender as any other of the garden, it makes a very safe guide.

*Garden Implements.*—On page 142 we have set forth the advantages of having, in even a moderate-sized garden, a seed-sower and weeder, as they not only save time, but do the work much better than

it can be done by hand—other sowers and other weeders afford quite a variety to choose from.

*Distances Between Rows.*—In a large garden it makes a great deal of difference whether rows are 12, 15, or 18 inches apart, but in a family garden a few inches are not so important. Provide markers to mark all needed distances without delay in changing the teeth. We find it better to have two

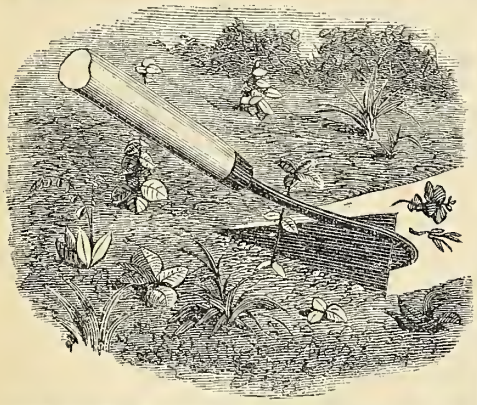
*Markers*, which are home made. A piece of scantling of convenient length has handles attached, as in the engraving. On one side stout teeth are fixed every 9 inches, and on the other at



12 inches. This gives, by using every mark 9 and 12 inch rows, and using every other mark 18 and 24 inch; besides this, we have one with the teeth 15 inches apart, which is often desirable. A line is set to run the marker by, the one who uses it walking backwards; if more rows are to be marked, the line will not be needed again, as a tooth of the marker may be run in the last furrow made.

*Garden Line and Reel.*—A line will often be needed in laying out rows, beds, etc., and *should have* a good reel. We emphasize should have, and if any one knows where a garden reel can be bought that is worth its weight in old iron, we will be obliged to them. We know of nothing more absolutely worthless for the purpose it pretends to serve than the garden reel as sold. It looks well, but will not last a week. It will save bother to discard the reel, and take two hard-wood sticks, 2 to 2½ ft. long, pointed at one end, and wind up the line on one, as a boy winds his kite-string, and tie the end of the line to the other. Another tool to be provided, is a

*Lance-headed Hoe.*—So far as we are aware, this hoe is not yet in the trade. It is so valuable an implement that we repeat our figure of it given once before. To every one who has much garden-work to do, this pattern is worth five years' subscription to the *American Agriculturist*. Have a hoe made at once, and when the weeds come, use it an hour and you will wonder how you have ever had a garden without it. The engraving will answer for a pattern to the blacksmith. The blade is 4½ in. long and 2½ in. wide at the end, of heavy steel plate (ours are mowing-machine plate), set to a shank shaped as the engraving. Used as here shown, it cuts with



great rapidity, but if an obstinate weed is met, give it the point. Keep sharp, and the large hoe will be seldom used. No bayonet hoe is nearly so good.

*Varieties* were fully discussed last month. The list given then on page 84 is intended as a guide to the novice—of course there are other good kinds besides those mentioned in the article, and there is abundant room for individual preferences.

*Greens* are sufficiently discussed on page 144. No form of vegetable is more acceptable in spring.

*Peas* are also treated of in a separate article (page 144). These are often sown while only the top-soil is thawed, as they germinate at a very low temperature. For a row of the very earliest we have put boards together, to form a V trough. These were set during the day on the side of the row, and at night turned over the plants.

*Early Potatoes.*—Those who wish the very earliest, start their potatoes in a warm room in boxes of earth; they require very careful cutting at planting time, to not break the shoots. Plant as early as possible to be ahead of the beetle.

*Asparagus.*—Rake off the coarse litter, and as soon as the bed is dry enough, turn in the fine manure with the points of the fork, taking care not to injure the crowns. New beds are to be set as soon as plants can be had. Strong, vigorous one-year old plants are best. In the best field-culture the plants are set 4 feet apart, with 6 feet between the rows, giving each plant a good supply of manure as it is set. In the family-garden such wide planting is not desirable. It is well to allow 3 feet between the rows, to allow room in collecting, and crowd the plants in the rows. Some set them 12 inches, and some as close as 9 inches, first working in a heavy dressing of well decomposed manure. The crowns should be at least 4 inches below the surface. Asparagus is not cut until the third year.

*Succession Crops.*—In localities where the season has allowed of the first sowings, the second should be made a week or 10 days after, especially of those vegetables as are of short duration, such as peas, radishes, lettuce, etc.

*Sweet Potatoes* need to be put into hot-beds about six weeks before the shoots can be set in the open ground. In the vicinity of New York the first of June is the average time for planting, and we put in the potatoes the middle of April. A light hot-bed is made, on this a few inches of soil is put, and the potatoes are laid rather closely on this and covered with an inch or two of soil. When sprouts appear, care is needed in watering and ventilating.

*Fertilizers.*—In many localities the obstacle to successful gardening has been the difficulty in getting a sufficient supply for manure, gardeners as a general thing being distrustful of artificial fertilizers. Within a few years the manufacturers of fertilizers have given their attention to garden crops as well as to field crops, and one can now procure just such materials as he wishes in any desired quantities. The articles on fertilizers that have appeared in former months, as well as those in the present number, have a value to every cultivator of the soil, and the fact that they are addressed to farmers does not make them any less useful to gardeners.

## Flower Garden and Lawn.

Whatever is to be done in the way of seeding or turfing should be attended to early, in order that the grass may become established before hot weather. For small plots the quickest results are had from turf. In turfing care is requisite in selecting the sod, to introduce no unwelcome weeds, and the foundation should always be carefully prepared so that there may be no uneven settling. On light soils, Red-top, especially that variety known as Rhode Island Bent, is best, and on heavy soils, especially if calcareous, Blue Grass is excellent. Either of these with a quart of White Clover seed to the bushel, is as likely to give a good lawn as any mixture, and more so than an imported mixture, as those often contain kinds that do not flourish here.

*Quality and Quantity* of seed have much to do with success in lawn making. If six bushels of grass seed are directed to the acre, it is because from three to five of these bushels are likely to be chaff. It will pay to examine different lots of seed before purchasing; the difference in the amount of real seed will often be found surprising.

*Weed-Seeds* should not be sown, as they are very apt to be unless the seed is carefully inspected.

*A Top Dressing* should be given the lawn each spring. Ashes, plaster, guano, fine bone, or nitrate of soda, may be applied on successive years, or a fertilizer containing all the essentials may be used.

*Planting of Trees and Shrubs* should be done early, and with as much care to preserve the balance between top and root as advised with trees.

*Perennials*, such as bloom early, are better if not divided until after flowering, but the others may be divided and reset at once.

*Ornamental Beds*, to be planted with tropical and other tender plants, should be manured and spaded, in readiness for planting.

*Gladioluses* are nearly hardy, and a first planting may be made as soon as the ground can be worked.

*Cannas, Tuberoses and Dahlias* may be set in boxes of earth in a warm place, to give them a start.

## Greenhouse and Window Plants.

The glass of the greenhouse will soon need a light coat of lime wash, and the plants in the window will require a muslin shade at midday.

*Plants to Set Out*, whether in the borders, or to be kept in pots during summer, must be gradually hardened for the change by giving exposure to air.

*Propagate* from such plants as will be set in the garden. Geraniums and many others will be too large to take up again next fall, and good young plants should be provided to take their places.

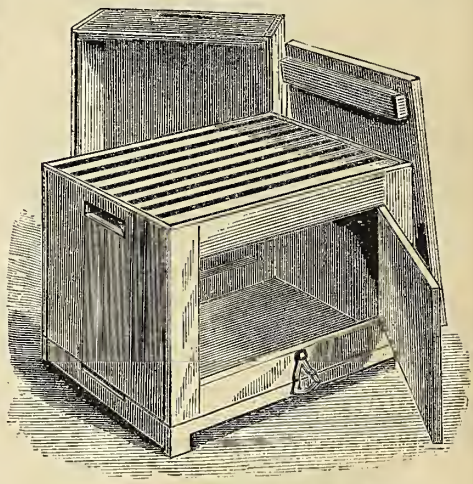


Fig. 1.—OBSERVATORY HIVE.

## Bee-Keeping for Everybody.

BY L. C. ROOT, MOHAWK, N. Y.

### Notes for Beginners.

In Feb. last, Mr. Root began at our request a series of articles intended for persons knowing nothing whatever of bee-keeping. There was an unavoidable omission of the article for March, the main points of which are given now. In February, page 47, the two leading kinds of hives are described in detail—the Hanging-Comb and the Standing-Comb hives. It was intended to show how the Langstroth or Hanging-Comb hive could be arranged as a hive for observing bees, but as room could not be found for the engraving, that and the description were then omitted and are now given. Mr. R. says:

HIVES FOR OBSERVING THE BEES.

The interest of bee-keeping is greatly increased by being able to watch the bees while at work, without disturbing them; several "Observatory Hives" have been devised for this purpose, one of which is shown in figure 1. This is essentially the same as the Langstroth Hanging-Comb hive (described February last, page 47, fig. 2), except that the two sides, instead of being solid, are made as frames 2 inches wide. Each frame has a pane of glass fitted upon the inside, and is furnished with a

Fig. 2.—TIN POINT.

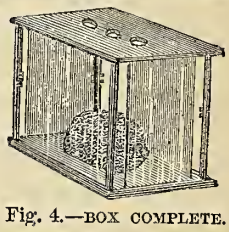


Fig. 4.—BOX COMPLETE.

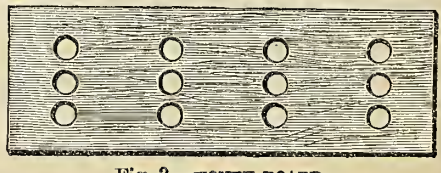


Fig. 3.—HONEY BOARD.

door. The door, made of two pieces of thin board, with the grain crossed, to prevent warping, should fit the frame neatly, be hung with small hinges, and fastened

by a button or book. This hive is shown in fig. 1, with the door opened and the top and cap removed. If it be desired to watch the bees from above, a frame with glass may be fitted to the top of the hive.

Beginners should bear in mind that promptness is one

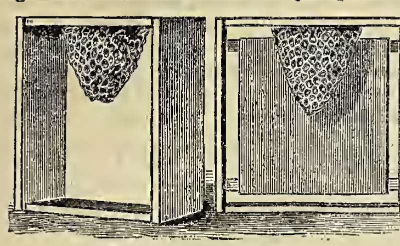


Fig. 5.—SECTION BOX.

of the prime essentials to success in bee-culture. It will be necessary to prepare boxes before they are needed, that they may be put on at once whenever wanted.

Many prefer a two-comb box holding about 4½ lbs. To fit the hanging-frame hive (shown at fig. 2, in February last,) or the Observatory hive, here given, fig. 1, these boxes should be made 6¼ in. long, and 4½ in. wide, of pine or basswood lumber, 1½ in. thick. The posts should be 5 in. long, and ⅜ in. square. These will take glass 5x6 and 4x5, which is fastened in place at the corners with tin points, fig. 2. Honey-boards, ½ in. thick, to place under the boxes, when upon the hives, should be prepared as shown in fig. 3. The bottom of the box has holes to correspond with those in the honey-board. The box complete is shown in fig. 4....A popular box at the present time is a Single-comb or Section-box. These

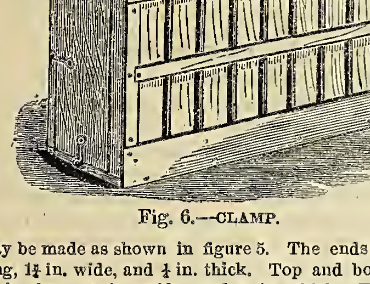


Fig. 6.—CLAMP.

may be made as shown in figure 5. The ends are 5 in. long, 1⅞ in. wide, and ¼ in. thick. Top and bottom are 5¼ in. long, 2 in. wide, and ⅛ in. thick.—These are to be placed upon the hive in what is called a clamp, which is shown in figure 6. It is a simple box, 5¼ in.

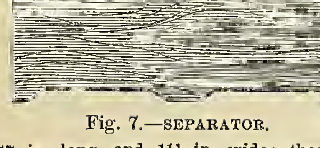


Fig. 7.—SEPARATOR.

high, 17 in. long, and 11¼ in. wide; these are the measurements if it is to be used for the standing-frame hive. If designed for a hanging-frame hive, it should be 12¼ in. wide, instead of 11¼. A part of one end of the clamp should be movable, and made to fasten in place with hooks, in order to put in and take out boxes with ease. A piece of ¼-in. band iron should extend lengthwise the clamp at the center. A strip of wood, or hoop-iron, should be nailed on the edges parallel to this, projecting inward ⅛ in., to support the ends of the boxes, of which there are two rows in the clamp. A separator, as shown in figure 7, should be prepared of proper size, and ⅜ in. thick, to place between the boxes, to secure straight combs, and at the same time allow the bees to pass from one box to another.

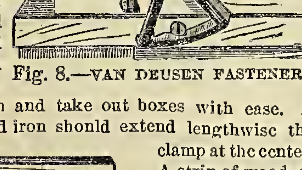


Fig. 8.—VAN DEUSEN FASTENER.

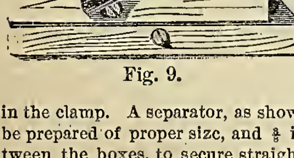


Fig. 9.

MARCH NOTES.

VAN DEUSEN FASTENER.—Mr. Howarth, of Illinois, asks: "Can you not illustrate and describe the Fastener for holding the hive to the bottom board in your next 'Notes?'" . . . This is known as the "Van Deusen Fastener," and is a very ingenious and valuable invention. Figure 8 gives an accurate idea of it when adjusted, and figure 9 when turned back and not in use. It holds the hive firmly in place when it may be desirable or necessary to move it for any purpose, and when it is not in use it is entirely out of the way.

MATERIAL FOR PRODUCING SMOKE.—Mr. Mason, of Michigan, asks: "What shall we use for smoke to quiet bees?—What do you think of puff-ball?" . . . The question of producing smoke, and manner of using it, has been one of our particular hobbies. We have experimented with every substance that has been suggested for the purpose. Puff-ball is objectionable, as it stupefies the bees too much. Nothing is more desirable than half-decayed wood. If it is very dry, it need be but very slightly decayed. It is applied to most perfect satisfaction by the use of the "Quinby Bellows Smoker."

SOURED HONEY.—Charles M. North, Delaware Co., N. Y., asks: "Will it answer in wintering a weak swarm to feed them on soured honey?" . . . I would not recommend it as a general rule, but have known it to be done without injury. This query has been accidentally overlooked, else it would have been answered before.

## A Talk about Fertilizers.

### Editor's Plain Talk with Plain Men.

This subject is one of rapidly increasing importance to *nine-tenths* of the cultivators of arable lands in New England, New York, New Jersey, Pennsylvania, Maryland, Delaware, Virginia, North Carolina, and considerable portions of South Carolina and Georgia; to *three-fourths* of those in Ohio, Indiana, Michigan, Kentucky, Tennessee, and portions of Alabama and Ontario; to more than half of those in Illinois, Wisconsin, Eastern Iowa, Eastern Missouri and Eastern Minnesota; and to a considerable number in the comparatively newer regions still further West. It is of importance *wherever* the richer stores of natural fertility in the virgin soils have been partially diminished or exhausted by some years of tillage.

### Better Crops and Larger Profits.

The great truth we have so frequently enforced and urged upon the readers of the *American Agriculturist*, is coming to be better understood, viz., that the *profits* of soil culture depend far more upon the *yield per acre*, than upon the number of acres gone over. Thus: If 50 acres require $500 expense of one's own or others' labor, for teams, implements and seed—to work, harvest and market crops equivalent to 12 bushels of wheat per acre, worth $1 per bushel, there is a profit of only $100, to pay interest on land, taxes, etc. On 100 acres the gross profits are $200. If now, by the use of fertilizers, or otherwise, we can raise the products to an equivalent of 20 bushels of wheat per acre, with the same expense of labor, teams, seed, harvesting, interest and taxes, the 50 acres will yield a gross profit of $500, or $1,000 on 100 acres. Or 25 bushels per acre would give a gross *profit*, less cost of fertilizers, of $750 on 50 acres and $1,500 on 100 acres.

### As to Fertilizers and their Action.

Omitting the question of drainage, and of green manures, and supposing the land in proper dryness and tilth, there is no doubt that a sufficient amount of the right kind of manures or fertilizers will secure this 8 to 13 bushels per acre *increase*.

*To fertilize*, means to make *fertile*—to increase the crop-producing power. The crop feeds on what it finds in the soil. Any thing is a fertilizer that adds to the supply of plant-food in the soil, or which by its action decomposes, unlocks, or changes to an available form, some food which is already in the soil but is in a form that the crops can not use. If, for example, plant-food was bound up in little sacs or coverings in the soil, and potash or lime would eat off these coverings and let it out so that the roots could get at it and feed upon it, the potash or lime would act indirectly as a fertilizer. Plant-food is actually locked up in bits of soil, and potash and lime soften and break up these bits; they thus help feed the plants.

*Illustration.*—Pearl-ash is composed of potash and carbonic acid. If mixed with dough, and baked, it merely browns it. A little cream of tartar put in will attack the saleratus, take away its potash, and the carbonic acid will spring out as gas all through the dough, filling it with holes and making it light and agreeable. Just so some substances when mixed with the soil attack and decompose certain materials and set portions of them free for the plants to feed upon.

Recent observations, careful experiments, and extensive chemical investigations, show that our cultivated crops need for their best growth the presence of several substances. Three or four are seldom abundant in soils, or are largely available in but few, and are rapidly exhausted by the removal of crops. Two of these, for example, PHOSPHORIC ACID and NITROGEN*, are indispensable as plant-food. POTASH is also needed as food, and to develop and prepare other food. LIME acts like potash in feeding or preparing food for plants.

### The most Valuable Constituents of Soils and Manure.

Of these four substances, *Nitrogen*, *Potash*, *Lime*, and *Phosphoric Acid*, some soils and crops want one, some want two, and some want three, if not all of them. Good Barn-yard Manure invariably contains all of them. So long as one can get *enough* of good barn-yard manure, cheaply enough, and near enough to the fields, *that* is all that is needed. With it, if the other conditions of the soil, its dryness and tilth or mechanical condition, be right, we can raise our crops from an equivalent of 12 bushels of wheat to 20, or 25, or more bushels per acre.

But unless it be on farms mainly used in stock-raising, there is far from enough good yard-manure to secure the higher profits. And just here another question comes in. If a soil lacks potash *only*, a small quantity of this in the form of potash salts, or of ashes, may be as useful as thousands of pounds of yard-manure containing only the same amount of potash. In that case we could buy and apply the potash more cheaply than we could haul and apply the manure to a field distant from the yard, allowing the manure to cost nothing. If the soil lacks *only* phosphoric acid for a certain crop, a bag of superphosphate or dissolved bones will supply more of it than several tons of yard-manure. If, then, we can ascertain just what a field lacks, we may find it very profitable to buy the special fertilizer the soil wants, and use the yard-manure on such fields as need all it contains, or on those heavy soils where its loosening effect will be most useful, and where little hauling is required. Now we are at the pith of the subject.

### Quack Fertilizers, and Good Ones.

What fertilizers shall I use to increase my crop—my corn, my wheat, my oats, etc.? Thousands of such questions come to us every year. We would rather be able to answer these questions definitely and satisfactorily in every case, than to own half the farms in a State. But we can not, as will be seen. The quack doctor, or quack medicine-man, commends a particular medicine for a hundred ailments. The quack manure-man who commends one kind of manure for *all* soils and crops is little better—unless his fertilizer contains all the materials needed by any soil or crop. "His gun is then loaded to kill if it is a deer, or miss if it is a calf." This is the case with the best "Complete Fertilizers" and with a mixture of potash salts with Peruvian guano, or with good superphosphates from unburned bones.

Some prepare special fertilizers, as "Wheat Fertilizers," "Corn Fertilizers," "Potato Fertilizers," etc.—the chief ingredients being those which the makers claim to be most useful to these several crops, and in many cases they just hit the want. But such fertilizers are similar to concentrated barn-yard manure, and the question is, will they

* PHOSPHORIC ACID, united with Lime, makes the solid parts of the *bones* of all animals. It must come from the food eaten, and the grain, hay, etc., must of course get it from the soil. But it is rare to find land containing 1 pound of available phosphoric acid in 1,000 lbs. of the soil. This explains why it is so soon exhausted by growing crops, and why it is so important as a fertilizer. (Chemists take away the lime from burned bones and get the phosphorus so much used for friction matches)....NITROGEN abounds in lean meat (muscles), cheese, etc., which come from plants. It is scarce in most soils, hence its usefulness as a fertilizer to supply crops....POTASH abounds in the ashes of wood and of all plants. We wash it (*leach* it) out of ashes, evaporate the water and get the solid potash. This, too, is seldom abundant in soils, though important to the growing plant, and hence it is valuable as a fertilizer.

pay? On soils needing *all* their elements, they will pay, if not sold at too high a price. They very often pay even when only one of their ingredients is actually needed, but by no means always. The "complete fertilizers" have been somewhat popular, because, having all the most valuable ingredients of plant-food, they seldom fail entirely, and they often do very good service to the crops.

### What our Soils Need.

But soils are so variable, even on the same farm, that it is next to impossible to say, without actual trial, that for a particular crop, this soil wants potash, that one wants phosphate, this one wants nitrogen, that one wants plaster, this one wants lime, and so on. Novices in agricultural science, and certain quacks, a few years since claimed that a chemical analysis of the soil would reveal its defects. This is not now claimed. A few—pity there are so few—earnest, conscientious, thorough investigators, are pushing their inquiries, and from observation they are able already to give a fair guess as to the most probable wants in certain cases, and science is now doing for agriculture what it has long been doing for other industries. These men have already stopped an immense amount of fraud, by examining fertilizers and securing laws that require makers and dealers in fertilizers to describe what they sell, and sell what they profess to. Large reputable establishments have grown up, and it is now easy to get what we want—instead of guano, phosphates, etc., adulterated with a large proportion of colored earth, or other useless material to give bulk and weight. Scientific men are also discovering new sources of potash, phosphoric acid, etc.

The practical question before us now, this spring, is, what fertilizers shall we buy. We are met by the announcement of two classes, viz.: "Complete fertilizers," and "Special fertilizers," and other articles, as guano, superphosphates, potash salts, etc., all offered by reliable dealers who have a reputation to sustain. If one's own experience, or that of neighbors on similar soils, will afford any guide, it is best to follow that. Without such help, it is a good deal of a guess-work. The "Complete fertilizers" will not be likely to prove an entire failure in any case. It is true, that we are likely in these to buy a good deal that our soils do not need. If they happen to need all the ingredients, we shall find decided profit in them. It is generally safe to try good guano, or finely ground unburned bones. On the other hand, the "special fertilizers" for particular crops, as made by the best dealers, are very likely to meet the case; and so there is not much to choose, by those without experience of themselves or others as a guide. It is hardly worth while to sit down in doubt and do nothing. "Nothing venture, nothing have." Try experiments, and watch results. Save a year by at once going to work to

### Settle this Uncertainty Yourself.

*Ask Questions of the Soil!* This seems to us as one of the most important things for every farmer to do, and at once—this year, not next. It can be done on a small scale at a trifling expense, or on a larger scale with greater benefit. Suppose we desire to learn which one of six fertilizers will most benefit corn on our soil at the least expense. Selecting a field as nearly like the rest of the farm as we can, and a level plot of uniform soil in that field, we mark it out with stakes, say into seven plots thus:

| | |
|---|---|
| A | *Superphosphate.* |
| B | *Muriate of Potash, or unleached Ashes.* |
| C | *Plaster.* |
| 0 | *No Fertilizer.* |
| D | *Some Complete Fertilizer, or Corn Fertilizer.* |
| E | *Wood Ashes.* |
| F | *Barn-yard Manure.* |

leaving one plot without manure. These plots may be 2 rods wide and 8 rods long, or 1 rod wide and 16 rods long, which will give one-tenth of an acre to each. Prepare the land well by plowing and harrowing, and work into each plot a given number of pounds of the fertilizers indicated. If the plots be one-tenth acre each, a good plan will be to put upon each plot as much of the fertilizer as $1 will buy at the ton price—or at the rate of $10 per acre. This experiment would thus cost $6. The expense can be reduced either by using smaller plots, or applying less quantity of each of the different fertilizers.

Now plant corn uniformly over the whole, including the "no fertilizer" plot, and treat the whole in the same manner through the summer. Watch the action of each fertilizer, and in autumn test the result by measuring the yield on each plot, and weighing or estimating the fodder. The same experiment may be tried with wheat, oats, potatoes, grass, or any crop most grown on any farm; or the the right or left half of the above plots may be put in one crop, and the other half in some other crop.

This we call putting questions to the soil. And we shall certainly get valuable answers. A comparison of the different plots will tell us *which* of the fertilizers that soil most needed; which one pays best; which, if any, of them pays its expenses or a profit, as compared with "no fertilizer."

Will not such an experiment furnish most important information for future guidance, on that soil, and others just like it, on the same farm? If neighbors having very similar soils also try the same experiments, and obtain the same results, it will be confirmatory. If such experiments be continued two or three years, so as to bring into account the effects in different seasons, we shall get at still more satisfactory conclusions. The experiments may well be varied from our simple plan, by more or less plots, by applying the fertilizers singly, and on some plots mixed two and two, and all together.

We urgently advise every cultivator to make a beginning *this* year. Make some trials, even if it be with only two or three small plots, with one or two of the leading crops, and with the fertilizers most accessible at each place. We are very sure that if only half a dozen farmers in each neighborhood would carry out such experiments for two or three years, the information gained would be worth to themselves and their neighbors a hundred times the cost, and to the country untold millions of dollars.

# Important Farm Experiments,

## So Simple that Every Farmer can Understand and Make Them—that will Pay those who do Make them, and be of great Value to the Country in the Information thus gained.

We ask every cultivator to read carefully the preceding article. Since writing it, three weeks ago, we have been planning and investigating the subject, trying to devise and arrange for a system of experiments, so simple and inexpensive that every farmer can *understand* and carry them out at a very small expense. The experiments hitherto proposed have usually been somewhat complicated, and expressed in scientific terms and plans, and involved so much expense, that the great majority of plain farmers have been unwilling to undertake them, even when convinced of their importance. We now propose a plan that *all* can take hold of with interest, and profit. Let us premise that we have not a single penny of pecuniary interest in the matter, direct or indirect, and that the cost will only cover actual expenses of fertilizers, bags, and necessary incidental expenses; and further that, besides the large amount of *most useful information* gained by each farmer who makes these experiments, we expect, as a rule, the increase of crop will go far towards, and very often more than meet the expense.

### Arrangement for the Experiments.

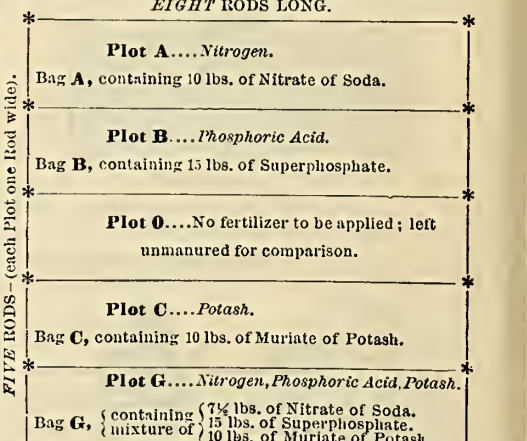
We have arranged a choice of three sets of experiments, as described below. The fertilizers may be obtained wherever any farmer can best get them of reliable and known quality. We have not the slightest preference for any one trustworthy dealer over another, and dealers throughout the country will find it useful for the future, to the public at least, to help forward the enterprise. As we can only undertake the supervision of supplies that are immediately at hand, we have arranged with three leading houses, having depots near us, to put up certain Sets of Experimental Fertilizers of our own planning. (See their names and address on next page.) The different fertilizers are to be put in separate bags. These will be marked, *A, B, C,* etc. Each bag will have a label showing just what it contains, so that every one will understand it. The smaller bags of each Set are to be enclosed together in a larger one, and delivered, cartage free, to any railroad, steamboat, or express. Those going to Eastern New England, will be shipped in the same way from Boston, Mass. It will be well for several neighboring farmers to combine and have their separate Sets come together in one lot, addressed to one of their number, as freight. It should be attended to *at once,* so as to give time to have the fertilizers put up, forwarded, and delivered, ready to use when the time arrives. We have arranged with Professor W. O. ATWATER, Middletown, Conn., to analyze the fertilizers, and see that they are of pure and standard quality; to furnish printed instructions and suggestions; to prepare a pamphlet telling about the fertilizers, and how to make the experiments, and giving the results of last year's experiments; to watch and report upon the experiments of this year and their results, and help to make them as useful as possible to every experimenter himself, and also to the country at large.

AMERICAN AGRICULTURIST FERTILIZER EXPERIMENTS, 1879.

**No. 1.—A Quarter-Acre Plot.**

Cost of Set of Fertilizers, in bags, shipped, $3.00.

This will consist of **four** bags, *A, B, C, G,* to be used on four plots. Select a piece of uniform soil, as nearly like the rest of the farm as may be. It can be marked out in any field prepared for a crop. It should be nearly level, so that one plot will not receive the washings from another. When plowed and harrowed well, mark off with stakes, five plots, one for each bag, calling them plots, *A,*




*B,* 0, *C, G,* for the bags with the *same* marks. Sow each bag of fertilizer uniformly over its own plot; that is, bag *A,* on plot *A,* etc. (the fertilizers are all finely ground and dry).*—Harrow the fertilizers well into the soil, running the harrow lengthwise of the plot, taking care to confine each fertilizer to its own plot. Then plant or sow corn, potatoes, or any other crop over the whole, the same amount on each plot, running rows lengthwise of the plots, and cultivate and treat the whole alike during the season. N. B.—Those who wish, can divide the whole plot across into halves, planting, say corn on the left-hand half, and potatoes or other crop on the right-hand half, so that each crop shall extend across the fertilized strips. It may even be divided into three or four plots, but for so small a plot as ¼ acre, we advise to have only one crop. It is important to select worn out soils for soil tests, that

is, those having only their "natural strength," and little or no richness left from former manuring. The soil must be uniform, or the tests will mislead.

**What the Experiment will Tell:**

FIRST: By watching the growth, and measuring the gathered crop, it will be easy to see how the crop on that soil is affected by Potash, or by Nitrogen, or by Phosphoric Acid, or by a combination of all of them as provided for in plot G.

SECOND: By comparing each plot with the no fertilizer plot 0, it will be easy to see which fertilizer pays expenses, or a profit, and which pays best.

THIRD: Such an experiment will be interesting, will stimulate thought, and prepare for more extended investigations. If there are boys on the farm, it will awaken interest in their minds, and be a good agricultural school, on a small scale, at home. The pamphlets sent with each Set will greatly help in this.

FOURTH: It will be a good step towards helping each experimenter to decide for himself, and for his neighbors, *what* fertilizers, if any, they can go into more largely in the future. (We do not discuss here, the effects of the season, the after effects next year, nor other special circumstances that may vary the results in any one set of experiments, etc. These are matters that we will talk over while the experiments are in progress during the summer. What we *now* want is for farmers, generally, *all of them*, to go to work and put in practice such a set of most valuable and important experiments.)

AMERICAN AGRICULTURIST FERTILIZER EXPERIMENTS, 1879.

**No. 2—A Half Acre Plot.**

Cost of Set of Fertilizers, in bags, shipped, $5.00.

This will consist of **eight** Bags, *A, B, C, D, E, F, G, H*, to be used on ten plots. *This is of course a much better Set than No.* 1. It includes all of No. 1, and four more. We have, first, the three ingredients singly in *A, B, C;* then we have them in mixture two by two in *D, E, F*, to see their effects when used in pairs; then all three together in *G*, and finally Plaster in *H*. Select the soil as for No. **1**, and treat in the same way. Lay it off thus:

*EIGHT* RODS.

**Plot O....**
No fertilizer, for comparison.

**Plot A....***Nitrogen.*
Bag **A**, containing 10 lbs. of Nitrate of Soda.

**Plot B....***Phosphoric Acid.*
Bag **B**, containing 15 lbs. of Superphosphate.

**Plot C....***Potash.*
Bag **C**, containing 10 lbs. of Muriate of Potash.

**Plot D....***Nitrogen* and *Phosphoric Acid.*
Bag **D**, containing 7½ lbs. of Nitrate of Soda. mixture of 15 lbs. of Superphosphate.

**Plot E....***Nitrogen* and *Potash.*
Bag **E**, containing 7½ lbs. of Nitrate Soda. mixture of 10 lbs. of Muriate of Potash.

**Plot F....***Phosphoric Acid* and *Potash.*
Bag **F**, containing 15 lbs. of Superphosphate. mixture of 10 lbs. of Muriate of Potash.

**Plot G....** *Nitrogen, Phosphoric Acid, Potash.*
Bag **G**, containing 7½ lbs. of Nitrate of Soda. mixture of 15 lbs. of Superphosphate. 10 lbs. of Muriate of Potash.

**Plot H....***Plaster* (10 lbs.)
Bag **H**, to learn the effects of this fertilizer.

**Plot OO....**
No fertilizer, for comparison.

TEN RODS—(each Plot two Rods wide and eight Rods long.)

NOTE.—It will be a good plan to add other similar Plots, and apply on them severally, stable manure, lime, and any other fertilizer at hand, for making a comparison.

Take note, that the above is very simple. The bags are all of accurate weight, with standard fertilizers of known quality and composition, and all the experimenter has to do is to mark out the plots, and use the bag marked for each plot. The result in the growth and in the yield will indicate what each fertilizer will do, on any soil for the crop or crops grown, also what any two of them will do if used together, and what all will do used together. The different materials in each bag are thoroughly mixed and prepared, so that they have only to be sown without further mixing or care.*

AMERICAN AGRICULTURIST FERTILIZER EXPERIMENTS, 1879.

**No. 3—One Acre Plot.**

Cost of Set of Fertilizers, in bags, shipped, $8.30.

This is the same as *No.* 2, except that the quantity in each bag is *doubled*, for plots of double size (one-tenth acre each). As the expense for bags, putting up, shipping, etc., will be the same, for each set, the double amount of fertilizer put in will cost only $8.30, instead of $10. With larger plots, more valuable results will be obtained, and more than one crop can be tried. The expense of the fertilizers, $8.30 per acre, will very likely be more than returned in the increased crop on a part of the plots. We strongly advise all who can to try Set *No.* **3.** (This Set No. 3, is the same as the Set *A* of last year, with the No. XIII. of 1878 added. Those who experimented last year, and desire to repeat the same trials, can obtain the Set A of 1878.

**How the Fertilizers are Supplied:**

We invited the leading dealers in fertilizers to meet at the *American Agriculturist* office, and laid before them our plans, and invited them to coöperate with us. They were informed that no profit would be provided for, but we wished them to put up the samples according to our plan and forward them *at cost*, and asked them to do this as a public enterprise. For reasons named above, we could not extend the invitation to points outside our immediate observation. The following parties entered heartily into the arrangement, agreeing to equally share any extra expense of printing, cartage, shipping, etc. (It was estimated that they will have to pay for cartage and shipping each single set 50 cts. or more, in addition to cost of fertilizers, bags, carefully weighing, putting up, labeling, etc.—freight not included.)

**Henry J. Baker & Bro.,** 215 Pearl St., New York.

**Bowker Fertilizer Co.,** 43 Chatham St., Boston, and 3 Park Place, New York.

**Mapes' Formula & Peruvian Guano Co.,** 158 Front St., New York.

All of the above houses will put up precisely the same articles. Prof. Atwater, in *our* behalf, will look after the quality, purity, and composition of the fertilizers, and test them by chemical analysis.—Our readers can send their orders direct to *any one* of the above parties, or they may be sent to the office of the *American Agriculturist*, and we will hand them to the dealers; we will send those to Boston which can be forwarded most cheaply from that point.—We receive not a penny for this, directly or indirectly, and only ask that correspondence and remittances on this subject be in a separate letter, distinct from other business, and save us as much as possible from correspondence.

*__Quality, etc., of the Fertilizers.__—The NITRATE OF SODA, to be sent in the bags, is to be guaranteed to contain 95 per cent of the pure salt. This will yield 15½ per cent of *Nitrogen*....The SUPERPHOSPHATE is to be guaranteed to contain 15 to 16 per cent of *soluble* phosphoric acid. We do not take into account the reverted and insoluble....The MURIATE OF POTASH, is to be guaranteed to contain 80 per cent of the pure salt, corresponding to 50 per cent of actual potash....The Plaster will be of the best quality of that article. *The Per Acre Applications*, provided in the bags for Sets Nos. 1 and 2 above, with the cost per acre at the present ton prices of the Articles will be about as follows:

| Rate per Acre. | A lbs. | B lbs. | C lbs. | D lbs. | E lbs. | F lbs. | G lbs. | H lbs. |
|---|---|---|---|---|---|---|---|---|
| Nitrate Soda | 200 | .... | .... | 150 | 150 | .... | 150 | .... |
| (*Supply'g Nitrogen.*) | 31 | .... | .... | 23 | 23 | .... | 23 | .... |
| Superphosphate | .... | 300 | .... | 300 | ..... | 300 | 300 | .... |
| (*Sup. Sol. Phos. Acid*) | .... | 45 | .... | 45 | .... | 45 | 45 | .... |
| Muriate Potash | .... | .... | 200 | ..... | 200 | 200 | 200 | .... |
| (*Supplying Potash*) | .... | .... | 100 | ..... | 100 | 100 | 100 | .... |
| Plaster | .... | .... | .... | ..... | ..... | .... | .... | 200 |
| *Cost per Acre...* | $ 7.50 | 5.25 | 4.00 | 10.87 | 9.62 | 9.25 | 14.87 | 80c. |

## Science Applied to Farming.—I.

MORE ABOUT THE FARM EXPERIMENTS WITH FERTILIZERS.

Instead of continuing from last month (page 91), the details of the Experiments of last year, of which full accounts are given in the Report of the Conn. Board of Agriculture for 1878, now in press, and in a pamphlet to go to the experimenters of last year and this, the Editors desire a summary of the main results, and suggestions for this year's work.

RESULTS WITH CORN.

1. In general, the complete fertilizers containing nitrogen, phosphoric acid and potash, brought better results than even farm manures, as the latter were used. In the experiments with corn, on soils good, bad, and indifferent, but mostly very poor, the average yield with 150 lbs. nitrate of soda, 300 of dissolved bone-black, and 200 lbs. muriate of potash, No. VI. (the same as No. G, of sets proposed this year), was 48.6 bushels of shelled corn against 45.9 bushels with the farm manures. Taken singly, the phosphoric acid was decidedly the most efficacious. The corn responded well to the superphosphate, No. II. (B, of this year's sets), in nearly all the trials. In some it paid little heed to anything else. The potash salts, No. III. (No. C, this year), were more or less effective in perhaps two-thirds of the trials. The nitrogenous fertilizers paid their cost in only 9 trials out of 53. The average loss was larger or smaller in proportion, as more or less nitrogen was used. The mixture of superphosphate and potash, No. F, was the most profitable for corn. With this the crop averaged 43 bushels per acre, and gathered so much nitrogen for itself that if the corn were fed out on the farm it would contribute more nitrogen to the manure than could be bought for the whole price of the fertilizer. The corn experiments have given more light on the feeding capacities of that crop, and the effects of different fertilizers upon it, than all the other data I have ever been able to gather from home or foreign sources, and I feel certain that the light to come from future work in this line will be still more valuable.

RESULTS ON POTATOES—GENERAL CONCLUSIONS.

2. With POTATOES, the comparative yields were still more favorable for the chemicals, as compared with farm manures. The complete fertilizer, in the trials reported, averaged the most profitable. Potash showed good results in nearly every case.

3. If I had to prescribe fertilizers for general use, on the basis of last year's experiments, I should say for Corn: a mixture of superphosphate with potash salts, and for Potatoes, the same, with the addition of some nitrate of soda. But I offer no such prescription; because of the difference in soils, and the need of more knowledge about the feeding capabilities of the plants.

4. The experiments confirm me in the belief that the proper policy, after making as much and as good manure as possible on the farm, is to piece out with superphosphates, bone, guano, potash salts, or other materials, such as the experiments and experience show to be most profitable on each farm.

5. The experience of two seasons confirms me in the belief that the experiments rightly conducted do serve the purpose for which they are proposed. The men who are respected as authorities in agricultural chemistry the world over, unanimously recommend them, and continue to do so year after year. Of the ways the results sometimes differ from what is expected, and the ways of interpreting them, I shall speak hereafter.

6. A number of last year's trials failed of their purpose, because they were made on land already in very good condition. "Worn out" soils, those that have only their "natural strength" to rely upon, are the ones to work on. Such a soil will be apt to do next year what it does this with the same manure. But if the soil has a store of available plant-food, accumulated from its own resources or left over from previous manuring, we can not tell how much of the yield is due to that and how much to the fertilizer. Another important point

is to make sure the soil is even. The object in duplicating the unmanured plots is to test this.

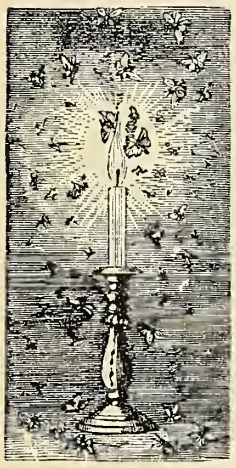
THE EXPERIMENTS FOR 1879.

Of the experiments proposed by the *American Agriculturist*, my very decided preference is for Set No. **3**. This is the same as Set *A* of last year, except that it has the mixture of Nitrogen and Potash, No. *E*, which that lacked. This provides for tenth acre plots. Next to Set No. **3**, I should by all means recommend Set No. **2**, which is the same as No. 3, except it is only half the size, *i. e.*, for one-twentieth acre plots. The sets, by the way, are essentially the same recommended by Wolff for soil tests. I earnestly hope that as many of last year's experimenters as possible will repeat their trials this year. I trust, too, that all will inform me of matters of especial interest or about which they are in doubt. I will try to find time to answer their letters, though it may be impossible to do so as soon as they are received. So let us look for a good season's work together.

W. O. ATWATER.

*Wesleyan University, Middletown, Conn.*

## Sundry Humbugs.



We will not attempt to discover why our budget of Humbug documents is so overwhelmingly devoted to lottery matters this month, but the fact is patent. Our accumulated material from all sorts of sources is usually in some sort an index to the prevailing moral disease. In this case, we are glad to state that excess of lottery by no means stands for success with that form of iniquity. Probably owing to the fact that the lottery under some name or or form is even at this day tolerated where it should not be, people in general are slow at accepting the fact that all lotteries are wrong in principle—a point that we have discussed in former volumes, and will not dwell upon now. Every now and then some good-natured person is astonished by finding himself the recipient of an attractive lottery scheme. He is rather disgusted, quite surprised, and at length satisfies his conscience by enclosing it to us with a note saying:

"IF THIS IS A HUMBUG, SHOW IT UP."

A very proper thing to do, though every reader of the *American Agriculturist* should by this time know that in such a case there is *no* "virtue in *if*." While a lottery may be honestly managed, i. e,, with only the wrong inherent in the scheme, which makes one lose money without cause that others who have done nothing to deserve it may gain it, yet they rarely are so, and those that seem to be surrounded by all sorts of safeguards—such as in some States the influence of ex-generals, and in others the names of judges, governors, and bishops—can be, and often are, converted into swindles. There is but little of our territory at present in which the lottery is not illegal. Pattee and his crew no longer ride high horses in Kansas and Wyoming. Being driven to the very frontier settlements; the lottery crew left the track of the "Star of Empire," and migrated to the Provinces. For a while the mails from New Brunswick, Nova Scotia, and there away, were teeming with flaming schemes—some were "Lotteries," some were "Distributions," some were "Concerts," but all with the prefix "Royal," and it must have astonished the Royal coat of arms to find itself pouring into Yankeedom at such a rate, as the figurehead of such a "Royal" lot of swindlers. For some months we have heard but little of the "Royal" schemes. All at once there is this sudden irruption, but—this sign of revival is

REALLY A CRY OF DISTRESS.

Among the several fancy names for the lottery in New Brunswick—for we suspect that, as under the Kansas and Wyoming dispensation, names are more numerous than things—one of the most prominent, is the "*Royal Gift Soirée*." We always did like that name—it is so *récherché*, not to say *comme il faut*. "*Soiree*" so nicely balances "Royal." "Royal Gift Concert" is loaded by the head, but in "*Royal Gift Soirée*," the *toute ensemble* has a tip-top *je ne sais quoi*. *Soirée* was a happy thought, and its pronunciation is fixed by the high authority of Mr. S. Weller, Jr.—"swarry." We have had rather a fancy for this "Royal Gift Swarry"—it sent out so much stationary and such a variety; there are Monthly Swarrys, which give out hundreds and thousands, just to keep its hand in, and then there are the Quarterly Swarrys, where millions are "dispensed with" in truly "Royal" style. Then it mentions great names, one a "Justice of the Peace," and another a "Sheriff." Then the Royal Coat of Arms heads the papers. There are "the Lion and the Unicorn a fighting for the crown." To the outsider every thing looks bright. The Lion roareth and the Unicorn paweth just as if the swarry had no trouble—but the "swarry" is not happy. The swarry is not the first manifestation of Royalty troubled with impecuniosity. It doesen't advertise that

"BUSINESS IS GOING TO THE BOW-WOS,"

but it does write to its agents that something must be done to increase the sale of tickets—and it deliberately asks its agents to join them in a fraud—to unite with the concern in making the public believe that something happened which never did happen. In short, this "Royal Gift Soiré" concern of New Brunswick proposes to

HIRE ITS AGENTS IN THE U. S. TO LIE FOR THEM.

We give the space to this case, because it shows what may happen in *all* lotteries, and does happen in most, and because as it is sometime since we have had much to say about lotteries, our letters show that our new readers should not be in any doubt as to our position in relation to them. That we may not misrepresent this "Royal" concern, we quote its letter to its agents, verbatim, the italics being our own. It is dated at the

"OFFICE ROYAL NEW BRUNSWICK GIFT SOIREE.

*Dear Sir.*—The Managers are satisfied some extra inducement must be given, in order to *increase the sale of tickets.* —Therefore they have decided to have a separate drawing, and distribute a large number of Prizes among *their Agents* in different localities, some of $100, some $200, some $500, some $1000, etc. Every ticket in this Special drawing for *the benefit of Agents will win a prize;* none of these tickets will be sold, but if you will introduce their new and popular 50-cent tickets in your locality, by selling six tickets in the regular drawing of March 10th, Capital Prize $10,000, and remit $3, we will send by return of mail six tickets, and also one of the special prize tickets free of cost, which *insures you a prize*, or we will send the tickets and you remit when sold.—When you remit state if you will allow us to *publish your name* and the amount of Prize drawn by you, as it might *benefit our sales* more than $5000 spent in advertising. —Write immediately if you desire to win a prize. For full particulars, Tickets, &c., address our authorized Agent" (whose name and address on Broadway, N. Y., is given).

THESE ARE "EXTRA INDUCEMENTS"

to agents to increase the sale of tickets. But how do they read by the side of another document put out by this same "Royal Gift Soirée," not to its agents, but a

"NOTICE TO THE PUBLIC."

We give the language of the "notice," omitting such dates and figures as do not affect or change its purport:

"These Grand Soirées and Distribution of Cash Gifts are under the managment of Hugh McKay, late Chief of Police. Therefore, from the start, honesty of management and success were assured. * * * The fairness and strict integrity of these Gift Soirées, under the management of Hugh McKay & Co., cannot be doubted or questioned, and the magnificent Schedule of Gifts and honorable management make it a favorite investment with the public, as the amount is but a trifle compared to the gifts. Every one has confidence in the integrity of the management...."

Every now and then, notwithstanding the publicity that has been given, and our repeated warnings:

"FARMERS, BE CAREFUL WHAT YOU SIGN,"

cases come to our knowledge, of much trouble and expense resulting from the carelessness of farmers, who, supposing that an address was being given, or some simple agreement signed, have found that they had placed their names at the bottom of a *promissory note* for a considerable sum of money. Generally the rascals sell the note at once, and the farmer is often sued for the amount by the holder. In a case at Northampton, Mass., in February last. It was not a farmer who was sued. but two Hunters, one Lord, and one McKinney—all four were sued for swindling Austin Waite, and were put under $1.000 bonds each to appear for trial in June next. It was a case of getting an order for mowing machine grinders, when Waite supposed he was only giving his address. If farmers only stand firm in such cases, they can soon rid the country of swindlers of this class.

CHEAP PIANOS.

Some parties offer a piano for $5. Others for the cost of packing if one will send the names of 20 persons who have no piano or organ but are likely to buy one—and our opinion is asked in such cases. We should not suppose it necessary to write for an opinion. Unless in some extraordinary cases, an article does not sell for a great deal more, or a great deal less than its real value. If these instruments are really worth $2.50 or $5 each—that is the end of it. We do not understand that a $500—or even a $50 piano is offered for $5. If one has room for a $5 piano, or can make any use of it when he gets it, he very likely can get as good a $5 piano in the cases inquired about as he can *anywhere!*

THE REAL VALUE OF A BOOK

depends upon many things. A work on the propagation of plants is advertised for sale at 50c. Several nurserymen have written that they have bought the work, and feel that they have been badly swindled. Perhaps, as they knew all that the work contained, and more too, they had no use for it; but suppose they had no previous knowledge of the subject—as the majority of people have not. Some single directions may have been worth many dollars. We preferred not to accept an advertisement of the work, when shown to us, for fear of just such disappointments, yet the information to one who needs it, is of real value. One of the best investments ever made by a large sign-painting firm in this city, many years ago, was to pay a man in Jersey City $600 for his secret preparation, by which he applied gold leaf in some kind of gilding. The man received the $600, took up a piece of glass, licked it with his tongue, and the gold-leaf adhered beautifully—"saliva" was his secret, and it proved to be worth the sum to the others to know it.

A DICTIONARY MATTER.

A man by the name of Hunt in a small town in Massachusetts is engaged in a very small business. He would no doubt like to have us give his address, but we are not in that line. He fills a postal card full of printed matter. It is headed,

SPECIAL OFFER { To the Readers of this Card. } $6.00 for 56 cents.

Then it goes on to describe, "The Illustrated Dictionary—22,000 Words, 250 Engravings; handsomely bound in cloth, etc., etc.—The conditions are. "If you will return this card, together with the names and addresses of 10 or 20 young gents, from 13 to 22 years of age, and 56 cents to pay mailing, packing, and other expenses, we will send you by mail, post-paid, the Illustrated Dictionary." "The above liberal offer holds good for 30 days only after receipt of this card," etc. Now this may be a device for

PROCURING NAMES FOR SALE—

as various methods are resorted to. He addresses himself to a common class, when he asks for the names of "young gents." No gentleman, young or old, would take such liberty with the name of another gentleman, to an unknown and suspicious person, for an unknown purpose. "Young gents" are unknown among decent people. After all it may be only a small money-making dodge. Hunt's card costs him perhaps two cents. He asks for 56 cents, and he will send that "Illustrated Dictionary." It is 5¼ inches long, 4 inches wide, and ½ inch thick. It has 320 pages of fair paper, looks neat, is decently bound. No name of author or publisher is given. Probably Hunt can send them for the price named, and make 25 cents on each. The chief deception is in saying or rather offering $6.00 for 56 cents.

TWO FAMILIAR FEATURES

have well-nigh disappeared from our budget. Now and then there is a solitary inquirer after that Secret Service affair. And we are encouraged to hope that Jones has found the most of his cousin.

MEDICAL MATTERS.

We would say to our friends as kindly as possible, that we cannot afford the time to answer queries about advertised medicines or advertising "doctors." Sometimes we have a dozen letters a day like the one before us. The writer is evidently anxious—has a friend he would benefit, sends us return postage, and *expects* a letter, and from the Editor. He would feel slighted were a clerk to write him. We can not find it in our heart to disappoint such, yet we know that we can not help him, and a printed reply would answer every purpose. So, evening after evening, much time goes to replies of this kind. The letter, we take for an example, contains an advertisement cut from some journal. The writer's friend has a girl who has fearful fits. The promises of this advertisement are caught at, and we are appealed to—what can we do? Such persons will not apply a general rule, and when we say we cannot commend *any* advertised doctor or cure, seem to think the case in which they are interested may be an exception. This "Fit Curer" says: "I warrant my remedy to cure the worst cases," which shows as plainly as could a whole volume what sort of a man *he* is.

**Artificial Butter, How Made.**—"J. C. M.," Almont, Ia.—The process for making artificial or oleomargarine "butter," is too complicated and not of sufficient importance to be described in detail here, as of course none of our farmer readers would go into the business. The outlines of the process are as follows: The oil is separated from the caul-fat by "rendering" in large tanks, and then, after passing through some refining process, is mixed with a little partially sour milk, coloring matter, and an alkali. The mixture is run over ice to remove the "grain," and is afterwards churned with about its weight of sour milk, in order to give the product something of the flavor and appearance of butter.

# Three Months Yet.

**The List of Good and Valuable Premium Articles is still open, and will be so for three months longer. The month of April is a good time for completing Clubs which may have already been begun, and for making up new Clubs, large or small. Remember that it costs no money, and takes but little time to secure one or more of these valuable Premiums. We can not spare space to give even the catalogue of the articles, but will be happy to send a list, with full description of each article offered, to any and every one desiring it, who will simply give us his or her address by postal card, and say on it, "Send me Illustrated Premium List." Over 20,000 of our readers have received these premium articles with great satisfaction. Thousands may do the same THIS MONTH.**

## The New Compound Microscope.

**A Most Valuable Instrument at a Very Low Price.—It has a heavy Iron Stand; the Body turns on pivot to any position from perpendicular to horizontal; has finely working Rack and Pinion for adjusting focal distances; double lens Eye-Piece, working in draw-tube; two excellent Object Glasses, to be used singly or together, and nearly achromatic; fine large hard-rubber Stage, with diaphraghm having different apertures; Mirror adjustable below and above for transparent or opaque objects—in short, for almost all practical purposes, it is as valuable as the $50 to $100 instruments. It has a magnifying power up to 125 diameters, and a most valuable Camera Lucida.** We have now succeeded in securing a **Compound Microscope,** that will surely give *great satisfaction* to all who can use any such instrument. It is a wonderful combination of the important elements of an instrument costing five to ten times the price at which this will be supplied. A *Camera Lucida* attached enables one to throw upon paper a greatly magnified image of objects invisible or nearly so to the unaided eye, and to sketch them accurately. Thus, for example, the foot of a fly or other small insect can be thrown upon paper and be sketched as large as one's hand.—We know of nothing else that would afford such a perpetual source of interest and instruction, to young and old. We can not spare the space to give anything like a full description of it, *but we will send to any one desiring, a descriptive illustrated pamphlet.* It is recommended in the highest terms by such eminent men as Prof. Gray, of Harvard, and others. Prof. SPENCER F. BAIRD, Secretary of the Smithsonian Institute, happening to see one of these Microscopes, expressed the highest satisfaction with its working, and immediately purchased one for the Institution.

Last year we offered a **"Simple Microscope"** to our readers, at a low rate, much less than its actual cost to us, though it was manufactured in large lots (5,000 to 25,000) with newly devised machinery that reduced the work very greatly. It was only offered as a *Simple*, 3-lens Microscope, and it gave great satisfaction to many tens of thousands of people. After thorough testing, it was adopted for classes in Colleges, Seminaries, Academies, etc., and it is largely sold now, at $1.50 retail. (We supply it to our subscribers wanting it *this year* for 50 cents at the office, or 70 cents delivered free anywhere in the United States. To all others than actual subscribers the price is $1.50.)—But a few subscribers were disappointed in it. Some had formed exaggerated and unwarranted expectations; they expected to simply look into it and see monsters. Others, through lack of mechanical skill, and especially *from failure to carefully study and apply the directions*, did not learn *how* to use it, and appreciate its merits, and laid it aside in disgust. This was their fault, and not ours. We can *show* any one that it was and is all that was claimed for it, and *more;* that it is more convenient and effective for good use and service than anything ever before offered for five times the money. We hope all who failed to value it highly, will again get out the chapter of directions that accompanied each instrument, (or send a stamp for a new one if the former one was lost,) and study the working of the instrument until they learn its value. Every one of these Simple Microscopes *ought* to be in frequent use; every one of them should be affording enjoyment and profit.

*containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of room elsewhere.*

## This Paper Contains:

Two important chapters on fertilizers and experiments, pages 127-129, deserve immediate attention, as early action should be taken....Two Garden items, page 141, to be examined and thought about at once; also Green Peas and plenty of them, see page 144. Look after the Salsify, page 145. While turning to these, some garden implements will be noted on page 142, etc....The "One Grapevine," page 145, is important to everybody not already supplied....As to flowers, see Flowering Blackberry, page 143; the Pæony, page 144, and the Star Anemone, page 145. .. The difference between bullock beef, and well fed, is similar to that between some ordinary poultry and nice Capons; but capons are as easily produced as steers, and how to do it is fully explained on page 139... .Guernsey Cattle and their characteristics are clearly described, with illustrations, page 135....Sundry hints and helps to farmers and others, with numerous engravings, on pages 137, 138, 139, 140, 141, etc....Wood-carving at home is becoming popular among ladies just now; our new contributor, "M. G. E.," begins a talk on the subject, page 145....Housekeepers will find their specialties on pages 146-7....The "Doctor" is leading the little folks, and doubtless not a few of larger growth, in some of the simple paths of useful knowledge, pages 148-9 ...The "House-Fly," its origin, mode of life, etc., etc., are brought to your acquaintance on page 149 ...Pearls, where they come from, and how, will be enjoyed by all who are not familiar with the subject, as few are. See page 150....The "Metric System" of weights and measures will be *the* system everywhere, as soon as the mass of people understand its simplicity and value. It is fully explained on page 148...."Prickly Comfrey" bids fair to become a staple fodder crop. See page 136, and the previous two papers....The first page speaks for itself, in the picture and description of an interesting breed of poultry....The Hints on Work for the Month, for farm, garden, orchard, etc., will be reminders of some things that might be omitted or neglected, and probably afford new suggestions to some at least....A fine Compound Microscope is offered. Several illustrated articles are crowded upon page 134....Prof. Atwater gives some lessons from last year's Farm Experiments on p. 129.... Many other useful items will be found scattered through the pages....See "Three Months Yet," on this page.

**If You Want Anything** not yet provided for the Spring—any seeds, plants, trees, implements, or anything else, almost—it will be well to look through the business pages of this paper. The April number is always crowded more than any other month, and more this year than before since the panic of 1873—one of the indications of reviving business activity. We have added 4 extra pages (48 in all) to make room for these without trenching upon the reading columns. Our readers will find the business cards of a great number of trustworthy dealers; we try to admit no others—hard as it is in these times—when everybody wants a paper below cost—to send away large sums offered for advertisers and advertisements that stand just on the dividing line between reliable and questionable, and which come endorsed as "admitted into the religious papers, etc." It is, of course, pleasurable to show the door to recognized swindlers, quacks, quack medicines, and the like.

**If You Don't Want Anything,** still it will always pay to go all through the advertisements, to see what is offered, how it is offered, when and by whom, at what price, etc. One can hardly do this, without gathering, insensibly perhaps, some hints and suggestions that will be useful in the end. Multitudes of new inventions and new thoughts have originated from reading over what others have done and are doing. As a source of general information, the business columns, filled with a great variety of descriptions, etc., are often as useful as the reading pages....We repeat the standing suggestion, that in writing to any of these men, or ordering, or sending for catalogues, circulars, or information, it is well to let them know that you belong to the great, wide-awake *American Agriculturist* family. It will please advertisers and perhaps stimulate them to extra care in pleasing you.

**"Let the Mud Dry First."**—Here is a capital lesson that may well be impressed upon the memory of both young and old: Mr. Spurgeon, in walking a little way out of London to preach, chanced to get his pantaloons quite muddy. A good deacon met him at the door and desired to get a brush and take off some of the mud. "Oh, no," said Mr. S., "don't you see it is wet, and if you try to brush it now, you will rub the stain into the cloth? Let it dry, when it will come off easy enough and *leave no mark.*" So, when men speak evil of us falsely—throw mud at us—don't be in a hurry about brushing it off. Too great eagerness to rub it off, is apt to rub it in. Let it dry: by and by, if need be, a little effort will remove it. Don't foster scandal about yourself or others, or trouble in a society, or in a church, by haste to do something. Let it alone; let it dry; it will be more easily eradicated than you think in the first heat of excitement. Time has a wonderful power in such matters. Very many things in this world will be easily got over by judiciously "letting them dry."

**A Milk and Butter Record.**—The great and rapidly growing dairy interests of this country, have been several times spoken of and illustrated in recent numbers of this journal. As the success of farming depends largely upon having good land, and of manufacturing upon having good machines, so the success of dairying depends a great deal upon having good cows. The cow is the machine that changes grass and other feed into butter and cheese. While some cows will scarcely do more than pay their keeping, if they do that, others are very profitable, because they have the ability to produce double the result from the same feed and care. The improvement of our herds of cows, is, therefore, one of the more important subjects now before American farmers. Our contributor, "Among the Farmers," gives suggestions on this topic (p. 136), that will be read with interest.

**A Most Desirable Residence,** with very superior Educational advantages and Society; fine surroundings; in a delightful New England City-town; a capacious, first-class Residence, etc.—3½ acres, within; but overlooking the City, and with splendid views. To Rent, Well-Furnished, to desirable Family, on very reasonable terms, for a year, more or less; or for sale low on easy payments. Address "New England," care of this office.

**The Kansas City Book and News Company,** of Kansas City, Mo., supply the publications of the Orange Judd Company in Missouri, Kansas, Arkansas, and adjacent States and Territories. Not only those who are already on the ground, but the large numbers of new settlers who are now emigrating to that region, will find these Agricultural publications of a very valuable character. Every farmer going to Kansas City should visit the City Book and News Company, and inspect the Agricultural publications there.

**The American Plant-Book,** by Harlan H. Ballard and S. Proctor Thayer, is a valuable book for the convenient preservation and analysis of pressed flowers, ferns, leaves, and grasses. It gives explicit directions for gathering, pressing, and mounting, and will be found exceedingly useful for those fond of work of this kind. Daniel Slote & Co., New York, publishers.

**Information about Sheep.**—"W. W.," Lyon Co., Minn. To give the history of several breeds of sheep in these columns, would be obviously impossible. That information can be procured in full in Stewart's Shepherd's Manual, in which the various breeds and crossing them for the purpose of improvement are discussed.

**Lambs in Market.**—"A. B.," Beaver Co., Pa. A lamb is a lamb in the market, until it is a year old, or until the spring lambs of the next season arrive; the price of the new arrivals is then the highest, and quotations gradually fall until in winter they are the same as for sheep. A fat lamb may come from Virginia or Kentucky, without appearing gaunt or empty; thin ones cannot.

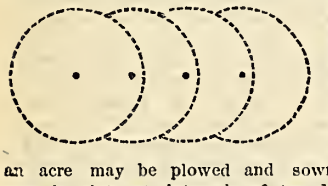
**The Great Walking Match,** so-called, though the contestants walked or ran as they preferred, and did both, has excited no little attention throughout the country. Enough people about New York were interested, to pay $51,000 gate-money. If such contests would result in getting all into a regular and continued habit of healthful exercise in walking, the effect would be beneficial. We attribute not a little of our health and muscular vigor of later years, to such walking as is afforded by following a smart pair of horses drawing a harrow, all

day. That is walking to a purpose, while supplying all the leg exercise that one desires—usually a little more. If a betting man, we should lay our wager on one of our farmer boys, or men, accustomed to plowing and harrowing, if pitted against any of the tens of thousands of youngsters now measuring steps around the limited tracks of multitudinous city and village hall floors.—We have yet to learn the utility there is—if there is any—in putting any human being to the terrible strain of going 500 miles or more on foot in less than six days. Railroads and telegraphs have done away with the necessity of swift couriers of enduring strength.—The most important lesson we can gather from the recent contest is this: Rowell, the champion, took no alcoholic or other stimulants from the beginning to the end, exeept a single glass of weak champagne; he ate freely of beef and other nourishing food, drinking with it only very little water. More would have diluted the gastric juice of the stomach, and retarded digestion. The thirst induced by the violent effort he slaked by frequently sucking the juice of an orange, using 15 to 20 of them a day. Weak and dyspeptic persons may well note this....The other contestants in the mateh, or their trainers, did not understand it in time, and we may thank our English visitors, Rowell's trainers, for this praetical lesson....We give the following figures, which show what men *can* endure, with the remark that to go a mile requires 1760 steps of a yard each, or 880,000 sueh steps to go a distance of 500 miles.

| | Rowell, 500m. | Ennis, 475 m. | Harriman 450m |
|---|---|---|---|
| Total. Time..... | 139h. 56m. 35s. | 141h. 0m. 57s. | 139h. 46m. 40s. |
| Rested..... | 37h. 41m. 20s. | 35h. 26m. 30s. | 37h. 32m. 41s. |
| Walked..... | 102h. 15m. 15s. | 105h. 34m. 27s. | 102h. 13m. 59s. |
| Av. time per m. | 12 min. 16 sec. | 13 min. 20 sec. | 13 min. 32 sec. |

**The Champion Reapers and Mowers.**—We have before called attention to the peculiar features which distinguish these Mowers and Reapers, and have given a detailed illustration of the movement upon which their distinetive character is founded. The makers set forth other claims of their machines in the advertising columns. One of these, the Dynamometer test, that is, the amount of draft power required, is worthy of consideration by all interested in farm machinery, or about to purchase a Mower or a Reaper.

**To Feed a Cow upon One Acre.**—"C. B. J.," Providence, R. I. One acre will not pasture a cow; but it will easily produce green fodder sufficient by growing the right crops. Proceed as follows: Dress three-quarters of an acre early in the spring with 150 lbs. of Peruvian guano, and 150 lbs. of plaster. As soon as the grass starts, the cow is to be tethered on this piece and fed by advaucing the tethering-pin as shown in the annexed figure. Each point is supposod to be 20 feet from the other, the dotted lines show the piece fed off each day. The remaining quarter of an acre may be plowed and sown with oats and peas in plots at intervals of ten days apart. This will give feed for 40 days, allowing one square rod per day. Then a portion of the piece pastured down may be plowed as soon as ready, and planted with sweet corn in drills, to be cut for fodder, and the cow pastured upon more ground, or the grass may be cut and fed to her, which will he better. Then more corn should he sown, until half an acre is planted. As soon as the oats are ready, they should he used, taking them off in strips which can then be plowed and early cabbages he set out, or Hungarian grass be sown. As each crop is cut, another should be put in, using the cow's manure for fertilizer, or any other that can he procured; but the ground must be rich. In June, plant mangels for fall feeding, and in August, some turnips; oats may be sowed in July for late cutting. By this system, a cow may be fed all summer, and enough fodder saved and cured to keep her through the winter. A quarter acre is to be kept in grass. The experience of one or two years is necessary to carry through such a course of feeding successfully.



**Satin Polish Shoe Dressing.**—We supposed that the French excelled the world in all that relates to Blacking and Leather Dressing, yet it appears that the "Satin Polish," a Yankee affair, received the highest award at the Exposition, and one of our associates, who has long used it, approves of the award.

**A NEW PREMIUM—And a Pocket Revolver, Cheap.**—So many write us for good, low-priced revolvers, that we have arranged to supply those who want them, thus: 1st—A first-rate steel-barrel and lock, *nickel-plated*, 7-shooter **Revolver,** Calibre 22-100. Made at the celebrated Remington Arms Works, weight 7 ounces. It is as good as any made for anything like the money, and good enough for anybody who wants such an implement. We have fired one 100 times, and found it work perfectly. It will be sent free to any part of the United States, post-paid, by mail, to any one sending only 5 subscribers to the *American Agriculturist*, at $1.50 a year, or 10 subscribers at the 4-club rate of $1.25 a year. [Or it will be forwarded free by mail, on receipt of $2.50. It is as good for use as any $5 or $10 revolver of like calibre.] **2d.**—A larger 5-shooter Revolver, nickel-plated, calibre 32-100, weight 11 ounces, will be presented for 7 subscribers, at $1.50 each, or 12 at $1.25 each, delivered free, as above. [Or it will be forwarded free, as above, on receipt of $4.]

**White Leghorn Eggs.**—"B. W. S.," Providence, R. I. Your not distant neighbor, Engene B. Pendleton, Westerly R. I., can furnish you eggs of excellent strains, His birds have taken prizes at fairs, and he is one of those dealers, who give attention to the character of his stoek.

**Clubs** can at any time be increased by remitting for each addition, the price paid by the original members: or a small club may he made a larger one at reduced rates, thus: One having sent 6 subscribers and $7, may afterwards send 4 names more and $3, making 10 subscribers for $10.00; and so for the various other club rates.

**Bound Copies** of volume 37, and of every previous volume back to Vol. XVI. (1857), neatly bound, with gilt backs, Index, etc., are supplied at $2 each (or $2.30 if to be sent by mail). See Publishers' Notes, 2d cover page.

**The German Edition.**—All the principal articles and engravings that appear in the *American Agriculturist* are reproduced in the German edition. Besides these, there is a special department, edited by an eminent German cultivator. Our friends can do us a good service by calling the attention of their German neighbors and friends to the fact that they can have the paper in their own language, and those who employ Germans will find this Journal a most useful and acceptable present.

**Borax for Preserving Butter.**—An Italian paper reports that experiments have been conducted at the Experiment Station at Florence for testing the preservative properties of borax on butter, with remarkable results. Samples of fresh butter were taken and manipulated with about 1¼ ounce of pure borax to each pound of butter, and after three months' time it was found to have retained the natural flavor without any change whatever, nor had the borax imparted the slightest taste to the butter. The borax used for this purpose must be perfeetly pure, and reduced to a fine powder, then mixed thoroughly with the whole mass of the butter. It may be well to try this in a small way, but we can not recommend it as a general praetice until it has been thoroughly tested by careful experimenters in this country.

**Potato Bug Poison—London Purple.**—Paris green has thus far been the accepted poison for the Colorado Potato Beetle. Paris green was known as a pigment long before the Potato Beetle was heard of. In the course of certain manufactures a compound of arsenic is produced to which the makers have given the name of "London Purple." It is not offered as a secret remedy, but as a highly poisonous compound of arsenic, having all the desirable and deleterious qualities of Paris green, and the chief superiority claimed for it over that is, the much lower price at which it can be afforded.

**Chilled Plows.**—One of the greatest of recent improvements in plow making, is in the hardening of the metal by means of the chilling process, which has vastly increased the durability of this implement. Prominent among the makers of plows of this kind, is the "Syracuse Chilled Plow Co." It gives some idea of their business, when they say that they expect that 40,000 of their plows will be a-field this season. As to the excellence of their plows, they offer the highest testimonials.

**Asbestos Liquid Paints,**—These paints, made by the H. W. Johns' Mfg. Co., have in a remarkably short time attained a position that could not have been possible without real merit. When the Company received the contract to supply paint to cover the entire structure of the Metropolitan Elevated Railroad, the extent of the order was a matter of remark. Since then, the Company have made a contract for all the white paint to be used, inside and out, upon that immense pile, the United States Capitol at Washington, and, if we mistake not, the other Government buildings. The magnitude of this order should not be a source of so much satisfaction to the H. W. Johns' Mfg. Co. as the fact that it was made at all. Those who know the thorough investigation that is made by the engineers in charge of the public buildings appreciate that this is indeed a high endorsement of the paint. The Asbestos paint is used upon another structure, which, though not so extended as the Elevated Railroad, or so prominent as the United States Capitol, is to the writer of far more importance than either—his own barn. It takes precedence of either of those in the fact that it was painted first. When the paint was applied, it was a comparative novelty. We noted then the ease of application and its covering qualities. Now, at the end of two years, we find the surface remarkably hard and glossy, and it shows every indication of wearing in a most satisfactory manner. The fact that it is furnished in a great variety of pleasing tints, and in a condition ready to be applied at once, will lead those intending to paint to look into its merits.

**A Handy Shingling Stage.**—Among the many sketches and descriptions of ingenious devices for use on the farm that our subscribers are now sending us, is one from "F. L. P.," Greenville, Ind., for a stage to be used in shingling roofs. The apparatus consists of an iron hook, made of strap iron, 1¼ by 3/16 inches and 3½ feet long, and shaped as indicated in fig. 1. The heel-board or seat is made of 2 by 4 scantling of any length to suit; triangular blocks are nailed to the scantling, three feet apart, to support the outer edge of a six-inch flooring plank, as shown in the engraving. Our correspondent has found these hooks "perfectly safe on the steepest roofs. Lying close to the roof they offer no obstruction to the snapping of chalk-lines. They furnish a comfortable seat to the workman, allowing him to walk back and forth with ease and safety. They can be readily moved up and down the roof as the work progresses, thus avoiding the driving of a single nail in the finished work." He is now using eight hooks which cost only $1.

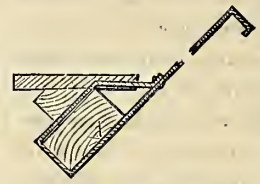


Fig. 1.—THE IRON HOOK.

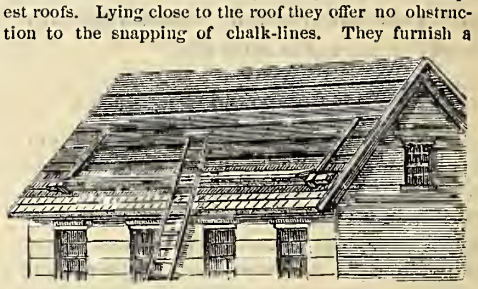


Fig. 2.—ROOF STAGE IN OPERATION.

**The Montgomery Rockaway Grain Fan.** The makers of this fan sent one of them to our farm, last year. In the press of other matters we have omitted to state that the Fan was found most satisfactory in use, the report indicating that it substantiates the claim of the makers—Messrs. Dorsey, Moore & Co., Baltimore, Md. It is not a new invention, but has been before the farming public for many years, being constantly improved, until now the makers think that they have a Fan that meets all requirements of the grain-grower, in separating foreign seeds. It is poor economy to buy a poor fan.

**Life Insurance—Reduction in Rates.**—With the general fall in prices, lower rates for life insurance have been looked for. To this it has been replied that the rates were originally made upon a 4 per cent interest basis; also, that it is better for Mutual Companies to maintain the old standard, and return any surplus accumulations. This last agreement would be a good one, but for the fact that those who most need life insurance have not the ready means to advance any more money than is absolutely required. It is also claimed that the business should be carried on now at less expense for salaries, etc. The experiment is to be tried, and it is well that it is to be done by one of the largest and strongest companies in the world, the Mutual Life Insurance Company of New York, which has assets amounting to over eighty-four millions of dollars, and a surplus of over four million dollars, or over eleven millions at the N. Y. Standard of 4½ per cent. This company now issues polices at a reduction of 15 per cent, as noted on page 151. Any one can obtain particulars, statements, rates, etc., by simply addressing the company for them.

**Russian Fair.**—The "Third Baltic Agricultural Exhibition, and International Live Stock and Machinery Competition," is to be held at Riga, Russia, June 27, to July 12th, next. The programme is a comprehensive one, and offers special attractions to American manufacturers, for the introduction of their goods into a country where agricultural implements are greatly in demand. For particulars, address O. W. Maddans, agent, Riga, Russia.

**Agricultural Steam Engines.**—Most of us can recollect when the employment of an elephant upon the farm seemed quite as probable as the use of a steam engine. It was not long ago that their use at all was discussed. Now the question is—"Which engine shall we use?"—and it need not be a very large farm to make

this question an important one. *Power* is needed for many purposes; shall we raise grain and feed it to horses and thus get power, or shall we sell grain and buy coal and feed that to an engine? The decision must depend upon individual needs and surroundings. One farm will need a stationary engine, while another must have a portable one, and the choice between the two must be carefully made. One of the oldest firms engaged in the manufacture of Agricultural Steam Engines, both Portable and Stationary, is Wood, Taber & Morse, of Eaton, N. Y., who offer a great variety. Not content with former achievements, they offer for the machines sent out this year, several improvements which will greatly add to their efficiency, including an Improved Governor. Full descriptions of their various engines are given in their catalogues, which may be had on application.

**Plowing with 3 Horses Abreast.**—"C. S.," Hart Co., Ky. In plowing with 3 horses abreast, one must walk on the plowed ground, unless some contrivance is used to throw the draft clevis on to the land side sufficiently to put the off horse in the furrow. This, however, has the disadvantage of throwing the draft out of line and causing considerable side draft.

**Sod vs. Stubble for Corn.**—A subscriber, in Fellow Co., Ind., planted 18 acres of corn last year; half on a clover sod, the other half on "the best side of the field, in corn the year previous;" all planted the same day and having the same treatment throughout. The result was 13 bush. per acre on the corn-stubble, and 50 bu. on the sod land. Although the stubble had some manure, it is very evident that the clover added vastly more fertility to the soil and was the cause of the larger crop. It is a common experience that a clover sod is one of the best of manures for any kind of grain crop, and it is highly valued by most wheat-growers in all sections.

**Red Ants** are often a great pest in a house, and it is difficult to get rid of them. A friend says that they may be readily trapped thus: Ants are fond of fresh lard, and if a plate be greased with that they will leave almost everything else and go for it; in their greediness they get caught in the lard and can not get away. The plate is to be occasionally warmed and wiped and then re-greased and set again. It is well to place some small sticks against the edge of the plate to serve the ants as bridges and ladders by which to reach the lard.

**Watering Horses.**—"I. S. M." Horses should drink after, rather than before eating, as a rule, though there are exceptions. A very thirsty horse may have a little water, though not all he desires, especially if heated.

**Whole Grain for Horses.**—A correspondent takes exception to a recent item in the "Basket" on "Crushed Grain for Horses," and says: "All the horses I have ever had do not relish oats so well as corn on the ear. Indeed, my blooded mare thrives finely the year round on unshelled corn. I give as a meal, 4 ears and a small handful of hay, on light work. At steady work, 6 ears and hay. Oats do not digest so well as corn. I feed old corn on the ear only."

**Lawn Mowers—The Philadelphia.**—There are several machines, each in its way so near perfection that choice between them is difficult. For example—if asked which of the leading sewing-machines was best, we could not answer. Each is best to the one who uses it. So with Lawn Mowers; several do almost perfect work, and we are puzzled when asked which is best. The makers of the "Philadelphia," Messrs. Graham, Emlen & Passmore, come forward in advance of all others, with the announcement of their machines for 1879—in which they inform us that they took the First Prize at Paris last year. We have seen no one accustomed to the "Philadelphia" who would exchange it for any other.

**A Grade Jersey Cow.**—We have often given it as our opinion that for all purposes *save breeding*, grade Jerseys were frequently more valuable than herd-book animals. Mr. Saml. J. Griswold, Guilford, Conn., supports this view by the following statements. He writes, March 1st ult.: "I own a grade Jersey cow, ¾ Jersey, ¼ Ayrshire, bred by Col. Thomas Fitch, of New London, Conn.; she dropped her calf Sept. 28, 1878; in the month of December she made 51½ lbs. of splendid butter, independent of the milk used in my family, which I estimate at more than 3 pints per day; her feed was dry hay and 5 quarts of provender, and 4 quarts of carrots or beets each day. Let any one excel this who can."

**Seed Drill and Cultivator Combined.**—The "Planet, Jr.," by S. L. Allen & Co., Phila., Pa., has long been before the public, and has proved itself a most excellent implement. It can be readily adjusted to sow seeds of different sizes, whether ordinary garden seeds, or those for farm root crops. After serving as a seed-sower, it is readily converted into a cultivator, wheel-hoe, or wheel-plow for keeping the plants free of weeds. Several forms of the implement are made—seed sower alone, wheel hoe and cultivator alone, and an implement in which these are combined, as explained in the catalogue to be obtained of the makers.

**To Prevent a Cow Leaking Milk.**—"J. B." To use an elastic band around a leaky teat, will be injurious. The compression will soon cause mischief. Any other mechanical contrivance will doubtless have the same effect. A safe practice is to procure some collodion at the druggists, and so soon as the milking is over, to cover the end of the teat with a film of it. This dries instantly, and shrinks in drying, thus closing the orifice so gently as not to be hurtful, and will break away in milking.

**A Reliable Churn.**—No doubt that the majority of the butter is made in large dairies, but the majority of butter makers have but from one to four or five cows. In the case of the writer, his cows are never less than one, nor more than three He manages to make butter summer and winter, and has for the past 7 or 8 years used no other churn than the "Blanchard." The cows, being high grade Jerseys, are milked up to within a few weeks of their time. In all these years there has been no case of "frothing" or any other difficulty in making butter, save on two or three occasions, and then it was found that the proper temperature for the cream had not been observed. With the cream at 60° to 63°, the butter comes as a matter of course, and we have but one fault to find with the churn, which is, that in summer the butter comes too soon. For working and washing the butter in the churn, and for ease of keeping clean, nothing more is to be desired.

**A Good Farm.**—A request comes from "F. H.," for one of the Editors to define "a good farm." If F. H. will state for what purpose the farm is wanted, and in what part of the world, and give his full name and address, we will endeavor to meet his wishes.

**Many Catalogues** of Seedsmen, Nurserymen, Florists, dealers in implements, animals, fertilizers, etc., etc., are received by the Editors. A brief reference to a large number of these, all we have space for, is given on page 156—our readers can hardly fail to find some one among them to supply almost any want. Fuller details of a few of them will be found in the advertising columns.

**The American Pomological Society.**—At the last meeting, at Baltimore, Nashville, Tenn., was fixed upon as the place of meeting for this year. The Southern members themselves proposed to change the place to some more northern locality. Just as we go to press we learn, and can only make the bare announcement that, at the invitation of the New York Horticultural Society, the American Pomological Society will hold its 17th Biennial Session in New York City. We expect to give the precise date and other particulars in our next issue.

**Lost Cud.**—"P. F. B." Elizabeth, N. J. Suspended rumination commonly called lost cud, is the effect of indigestion. This is frequently removed by giving the cow one pint of raw linseed oil, or melted lard. A very popular remedy is to cause the cow to swallow a salt mackerel; this is often effective, and operates doubtless by the action of the salt and the oil in the mackerel.

**How to Make Boats.**—"H. W. W.," Enon, Pa. Instructions for building boats were given in the *American Agriculturist* for October, 1872.

**"Grub in the Head."**—"B. F. A., Macon Co., Ala. The bot-fly which lays its eggs on the sheeps' noses, may be driven off by covering the noses with tar. If the time to do this cannot be spared otherwise, make a long trough of a V shape, and scatter a very little salt at the bottom, then take a brush and smear tar on both sides of the trough inside, so that when the sheep lick the salt, they will rub their noses on the tar. To blow puffs of smoke into the nostrils, until the sheep are giddy and fall down, often causes the removal of the worms.

**Roots for Cows.**—"S. H.," Waukesha Co., Wis. Sugar-beets (Lane's Imperial) are better for milk cows than mangels; they have more sugar and less water in them. A variety of mangel, called the Yellow Globe Kinver, is excellent for cows.

**Stock for a Cheese Factory.**—"L. S. T." To run a moderate sized cheese factory the milk of 600 cows, at least, would be required. The building and furniture could be procured for about $2,000.

**Plowing in Green Crops.**—"P. W.," Talbot Co., Md. When the land is too poor to grow a crop of rye or oats, it is too poor to grow anything of value for turning under. Green manuring is a good method of keeping land in good condition, but is useless for improving poor land, because poor land cannot produce a crop to turn under. Something may be done by sowing buckwheat as early as is safe, and turning the crop under when in blossom; then sowing again to buckwheat, and turning that under; rye may be sown on the last plowing and harrowed in. A dressing of 20 or 30 bushels of lime per acre would be useful spread on the last plowing and harrowed in with the rye. It is probable the soil will then produce a crop of clover.

**Turnips for Milk.**—"O. S. C.," Belvidere, Ill. Turnips are useful as food for sheep and beef cattle; but they are far surpassed in this respect by mangels, "blood" beets, and sugar-beets. 30 to 40 tons of the latter can be produced per acre with the same culture that will produce 20 tons of turnips, and red or blood-beets come as early into use as turnips. The great objection to turnips is that they *will* flavor the milk and butter in spite of nearly all precautions.

**Pearl Millet.**—"S. H.," Milwaukee, Wis. Last season we saw a bunch of Pearl Millet, one plant only which would furnish as much fodder as 12 hills of corn of moderate size, such as is grown for fodder. If it would have grown so well in close rows is doubtful, and it is hardly safe as yet to say if it will be better than corn. That is to be tested. It is enough to say at present that the plant is worth trying in a small way. It will grow where sorghum will, and to get the best results must have rich soil.

**Tanning Sheeps Pelts for Rugs.**—"A. D.," Republic Co., Kansas. Sheeps pelts can be tawed and not tanned. Tawing is done by scraping the flesh side of the pelt clean from all flesh or fat, then sprinkling it with a mixture of finely powdered alum and salt in equal parts. Two skins are then laid with the flesh sides together, or a single one doubled lengthwise, and rolled up for a week or 10 days, then opened, scraped, and washed, and rubbed dry with a piece of chalk, and worked and pulled until the skin is soft.

**Turnips for a Horse.**—"Old Subscriber," New York. Turnips are healthful for horses. They should be cut into thin slices, or what is better, pulped finely and mixed with a little meal and some salt. Ruta-bagas are better than white turnips. One quart of oil-cake meal daily will be useful, especially in the spring when the coat is shedding. This may be given with some corn-meal or other ground feed.

**Strength of Concrete.**—"F. C.," St. Cloud, Mich. Well made concrete is much stronger than stone and lime mortar; it increases in strength daily for more than a year. After that time good concrete will resist a greater pressure than common sandstone.

**Burning Charcoal in Kilns.**—"W. A.," Westport, Ohio. Charcoal is burned in kilns, by piling the wood as closely as possible until the kiln is full. Fire ways are made from air holes left in the brick work in the bottom, and the pit is kindled; when it is on fire sufficiently, these holes are stopped as may be required; if this is done without caution, and by inexperienced pit burners, the gases given out sometimes explode and burst the kilns. A kiln burns down sooner than a pit: 10 days are sufficient, and a 25 cord 1000 bushel kiln, may be filled, burned, and emptied twice in a month. There are more brands made in a kiln, than in a pit, but these are useful in starting the fire in a newly filled kiln. No one should try to burn a kiln, until he has learned the business of coaling in pits. It is well to build a small bee-hive shaped kiln first and try that; this kind is the safest.

**Wound in the Fork of the Hind Legs.**—"X. Y. Z.," Maries Co., Mo. A wound between the legs where the skin of both thighs comes in contact, is difficult to heal. The best course is to dress the wound with a simple cerate upon a pad of soft cotton, held in place by a bandage, passing between the legs and fastened to a strap or surcingle around the body. A little powdered "blue stone" (sulphate of copper) may be sprinkled upon the cerate.—Simple cerate is white wax, melted with twice its weight of sweet lard, with gentle heat, and then stirred until cool.

**Wheat and Chess.**—"B. M." If the owner of the specimen that is "part wheat and part chess," will send it to us, we will cheerfully examine it, but we shall not pay the sum named or any other for the privilege.

**Sheep Pulling Wool.**—"G. H. M.," Colorado Springs, Col. Sheep pull each others wool when they are suffering from indigestion and a depraved appetite. When this is noticed, it would be well to give a strong dose of salt which will act as a purgative, or one ounce of an equal mixture of salt and Epsom salts may be given to each sheep separately, lest some get too much.

## Safety Horse Shoes.

Some of the German agricultural papers describe a method of applying calks to horses' shoes to prevent them from slipping. The shoe is pierced as shown at fig. 1, and the holes are threaded to fit the screws, fig. 2. The latter consist of sharp chisel pointed pieces of hard steel and buttons. The sharp points are screwed into the shoes when the horses are at work, and when they are brought into the stable, the points are taken out, and the buttons are put into their places. The screws are square-headed so that they may be moved by a wrench.

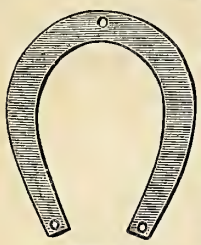


Fig. 1.

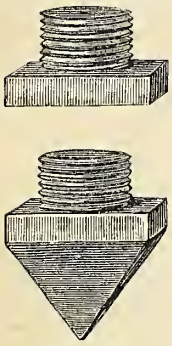


Fig. 2.

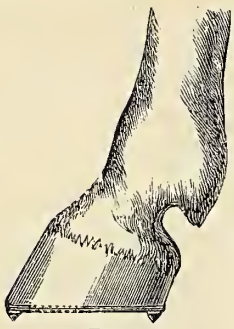


Fig. 3.

At fig. 3 is shown the shoe as it is fitted to the foot. Any ordinary shoe may be thus fitted; there is no necessity for its removal to change the calks, and in the stable there is no danger of injury from the points, because they are replaced by the buttons.

## Temporary Fence-Posts.

Portable fences are becoming common. A convenient post for a temporary fence is shown at fig. 4. It is made of flat bar-iron, pointed at the bottom. The bends are intended to receive wood fence-strips, which are fastened in place by short pieces of bar-iron bolted to the post. The bottom piece is lengthened into a brace, which, being driven into

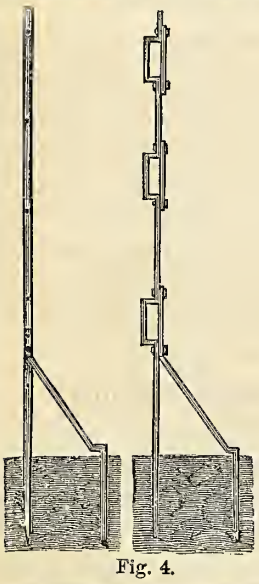


Fig. 4.

Fig. 5.

the ground, holds the fence firmly. A similar post, fig. 5, will serve for a wire fence, the wires being carried by the staples and held firmly when these are screwed up close by the nuts behind the post.

## Use of Bark for Buildings.

The bark that is so often wasted is valuable for many uses. It may take the place of lumber for siding and covering pens and sheds, and the effect is picturesque and pleasing. It is durable, and will not split so much as some boards. Bark is peeled from the timber in the spring: oak bark is loose about May; hemlock and other evergreens, and tamarack can be peeled until June or July. When the tree is down the bark is peeled by first cutting it through around the logs in lengths of 4 to 6 feet,

Fig. 6.

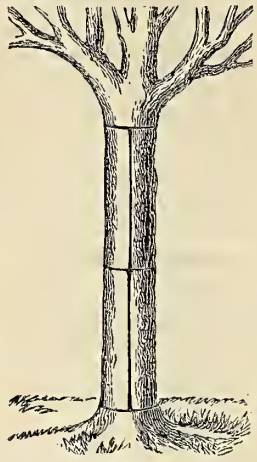


Fig. 7.

as shown at fig. 6. When it is desired to deaden and season the timber before it is cut down, as is done in the South, the bark may be ringed and split as shown at fig. 7. To loosen the bark, an iron, or iron-shod wooden spud or chisel is used, with a thin broad edge like that in fig. 8. This is inserted under the edge of the bark, which is forced

Fig. 8.

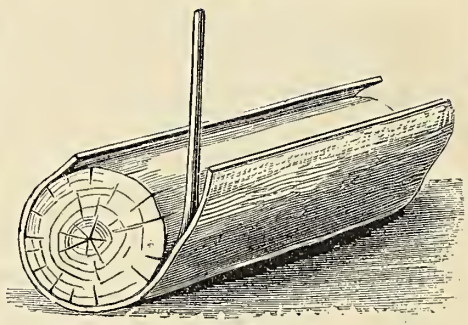


Fig. 9.

from the timber in a sheet. These sheets (fig. 9), while green are flattened out and piled to dry, with sticks between them in the manner shown at fig. 10. Stones or heavy pieces of wood are laid

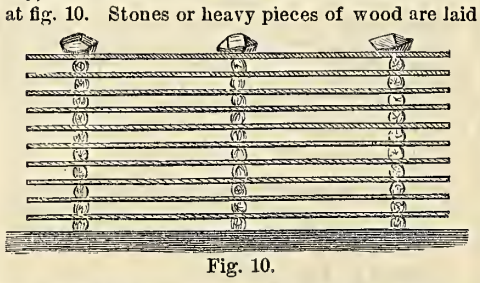


Fig. 10.

on the top to prevent the bark from curling up as it dries. The inner surface of the bark is laid downwards, for otherwise the rain would mildew and stain it, and rot it in warm summer weather.

## Read—Read Carefully,

Thoroughly, and thoughtfully, the Talk on Fertilizers on page 127, and the one on Farm Experiments following. The subject of Fertilizers is one of the most important now before American cultivators, yet it is comparatively little understood. We have tried to set forth the principles in the plainest language, divested of all scientific terms, except three or four names of things which have no other names. It will be interesting to every reader, whether a farmer or not, to understand these principles. For example, all have bones, the solid part of which is mainly made up of lime and that highly inflammable substance, phosphorous. This bone material must come from our food; the food must get it from the soil; soils generally contain little phosphorus, and here comes in the fertilizing process. We are anxious to have cultivators read and understand the subject; to get into the way of farming more profitably by using the *right* fertilizers, and save some of the millions of dollars wasted in the purchase and use of these articles at haphazard. We are confident that if we can persuade farmers generally to take hold of Farm Experiment No. 2 (page 129), or better still, No. 3, it will be of very great advantage to themselves, and others, in the future. A simple experiment (No. 1) is provided for those who can not, or dare not, or will not undertake the more important and more complete No. 3, or No. 2. It is certainly far better to try No. 1 than to make no advance in this direction.

## A Handy Clothes-Rack.

Some contrivance, upon which small articles of clothing, etc., may be hung to dry or to air, is often a great convenience. Such affairs are sold at the furnishing stores, and many have exercised their ingenuity in producing home-made racks, several of which have been given in former volumes. A rack

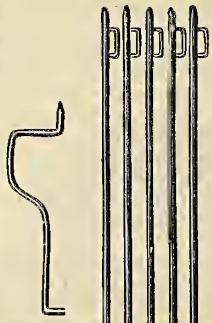


Fig. 16.



Fig. 14.

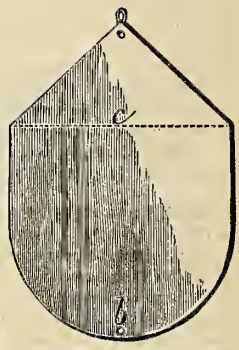



Fig. 11.

of this kind should be so made that its arms may be readily extended, and when not in use, take up but little room. "G. D. J.," Sterling, Ill., sends sketches of a rack he has contrived; he gives no measure-

Fig. 12.

Fig. 13.

ment of parts save the rods, which are three feet long. Figure 11 is the back-piece, which is to be fastened to the wall, and to which the other parts are attached; fig. 12 is a semi-circular block, with five holes bored in the edge; this is firmly secured to fig. 11; fig. 13 is a curved rod of iron, fastened at *c* to the back, in front of the block 12; the drying-rods, fig. 14, three feet long, have each a staple of brass wire, through which the iron rod, fig. 13, passes. The rack, when completed, is shown in fig. 15; the drying-rods, when not in use, hang by their staples to the iron rod; to extend them, they have only to

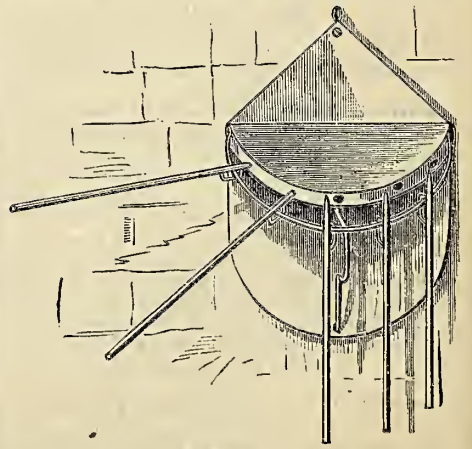


Fig. 15.

be brought to a horizontal position, and the end of each thrust into a hole in the block. The brace, fig. 16, is used to strengthen the affair as seen in fig. 15.

## The Guernsey Breed of Cattle.

The cattle of the little island of Guernsey bear its name, but if a visitor to the island asks about the cattle there he will probably be told that they are of the Alderney breed, or that they are identically of the same breed as those of the adjacent island of Alderney. It is indeed true that the cattle of these two islands are very closely allied, the islands themselves are in the same judicial district, the same laws govern the importation of neat stock, and occasional transfers of stock take place. This, however, does not make Guernseys, Alderneys. There is really no such breed as the Alderney, but that name, as has been often before explained, was given in England, and more or less in this country, indiscriminately, to any of the cattle of the Channel Islands—that is, to both Jerseys and Guernseys. Stringent regulations prevent the introduction of breeding cattle from anywhere else, even those of the sister island of Jersey are subject to the embargo, and are not regarded as of the same race; though in Jersey the cross with the Guernsey has been taken and valued, and the regulations which enforce the immediate slaughter of any cattle capable of breeding which are brought to the island from anywhere else, do not apply to those of the other islands of the Channel Island group. Thus it would appear that in the opinion of the islanders themselves the Guernseys are the choice breed of the Channel, improving the Jerseys but not themselves benefited by the Jersey or any other cross.

They differ greatly from the Jerseys in many respects. They have little or none of that peculiar deer-like style and expression which characterize the Jerseys. They are coarser in bone, heavier in carcass, larger every way, and naturally less precocious. They are allowed to first calve at about two and a half years old, which gives them more size and probably also a tendency to carry flesh. Their breeders are not unmindful of the facts that the size of the calves, and the aptitude of the cattle to make beef and turn off well when their usefulness in the dairy is from any cause at an end, are matters of no small importance to the so-called "common farmers"—that is, to all who are obliged to study closely the economies of farming. The Guernseys are preëminently the farmer's cow for cream and butter production, and for coloring the butter of other cows. So strong are the race characteristics (prepotency) that grades, even only half-breds, possess the best qualities of full bloods to a remarkable degree. It might be inferred that the Guernseys are not a good looking breed; the contrary is true of many specimens. There are indeed among them not a few whose sloping rumps, big heads and heavy limbs are not ornamental, but as these are likely to be the very best milkers and butter cows of the herd, their defects are easily overlooked, or even magnified into virtues or points of beauty. For instance, the long head and broad square muzzle are regarded as characteristics of value if not of beauty, and one can hardly visit a Guernsey herd, either in this country or on the island, without having this feature pointed out and dilated upon. The colors which predominate in Guernsey cattle are yellow, redish-yellow, fawn, brown shading to nearly black, light-fawn, and yellowish-fawn, dun of various shades, never, however, inclining to gray, as is usual among Jerseys. These colors are more or less mingled with white, which is most frequently met with upon the belly and flanks, the legs, switch, and face. A star, or rather a triangular spot in the forehead, with a white switch, are regarded as characteristic, even though scarcely any other white is obvious. Solid colored cattle occur, but the fashion has never set decidedly in that direction, and as useful points have so greatly the preponderance in the estimation of Guernsey breeders, it is earnestly to be hoped that they will not lend themselves to the folly of placing a fictitious value upon any color points. It is enough if the colors of a fine animal are agreeable and indicative of purity of blood Brindle not unfrequently occurs either as obscure lines upon the head and neck (black upon fawn or reddish-fawn), or more extensively covering the body. It is not an admired color, but is certainly no indication of impurity. The skin of the Guernseys is soft, pliable, and unctuous, abundantly supplied with "yolk," which is almost universally of a rich orange-peel color. This is, of course, most conspicuous within the ears, and when the hair is parted upon white spots, especially on the head and shoulders. The udder, scrotum, and the nearly hairless parts, like the spots between the forelegs and brisket, and around the eyes, have a similar rich yellow *glow*, while the muzzle, which is characteristically black in the Jerseys, is white or buff in the Guernseys, and usually encircled by a fillet of light short hair, though this marking is much less conspicuous than in the before named breed.

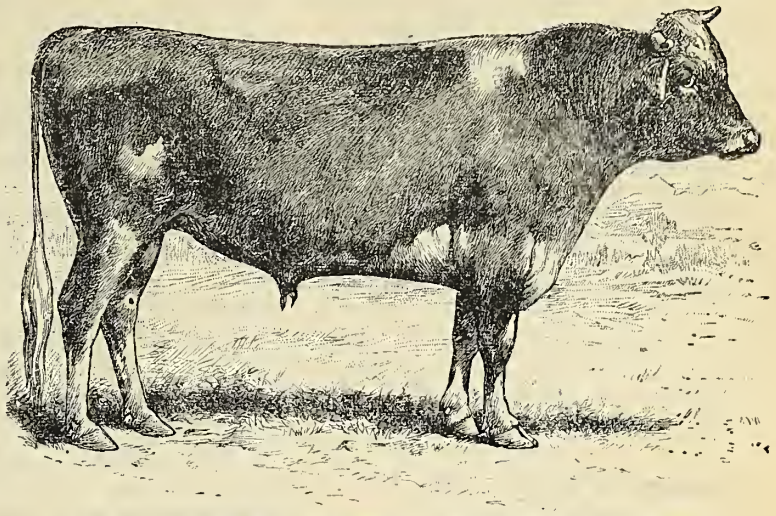


Fig. 1.—GUERNSEY BULL "HUBERT."—*Owned by E. F. Bowditch, Esq.*

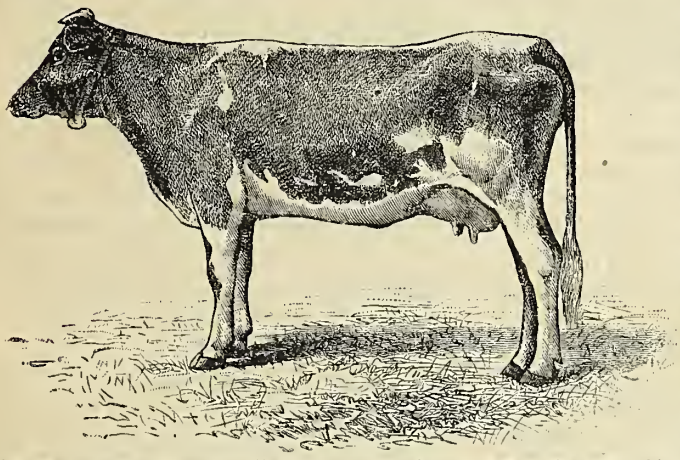


Fig. 2.—GUERNSEY HEIFER "MISS ALICE."—*Owned by E. F. Bowditch, Esq.*

The Guernseys are certainly deeper average milkers than the Jerseys. It can not be said, perhaps, that they give richer milk, but it is much higher colored, and will impart its beautiful tint to the butter of a number of common cows, being in this respect decidedly superior to the Jerseys. As to the quality of the butter, aside from color, there is nothing to choose between them; and as to which breed will give the most milk, or make the most butter upon a given quantity of feed, that has never been determined. Cow for cow, the Guernseys have the advantage in size, and would probably on that account not produce so much in proportion to their live weight. As a breed, the cows have excellent udders, and teats which fill a man's hand. Many are well marked, according to the Guenon theory. They hold out well in their milk, are quiet, docile, and tractable both on the tether and in the pasture; in short, for general usefulness, as butter yielders, they are nearly perfect.

The history of the breed in this country is briefly told. Guernseys were imported both into Massachusetts and Pennsylvania nearly 40 years ago, and not long after into New York. Wherever they were bred they made both their mark and fast friends; but the distinction between them and the Jerseys, which were then universally called Alderneys—a name which has been rather indiscriminately used as applied to any cattle from the Channel Islands—was not generally recognized, and the blood was in many cases mingled and lost. A few herds have been kept pure with jealous care, and these, with recent importations, form the basis of the registered or herd-book stock now for the first time making a figure among the pure breeds of this country. The Guernsey is a favorite breed in England, and has there been bred either pure or crossed with the Shorthorns for milk and butter purposes; and noble cows indeed are those cross-bred Guernsey Shorthorns—very large, perfect handlers, rich and deep milkers—genuine ideal dairy cows. In this country, as already intimated, they are a good deal crossed with the Jerseys. There is at least one entire herd of some 40 or 50 milch cows, all of which contain a mixture of the blood of these two breeds; a Guernsey bull having been kept some years at the head of the herd, and then changed for a Jersey. The result is a herd of cows of great uniformity, combining the style and great beauty of the Jerseys with the heavier carcass, better beef points, and richness of color of the Guernseys, while the excellencies of both breeds combine in the cross to form a milch animal of unusual value.

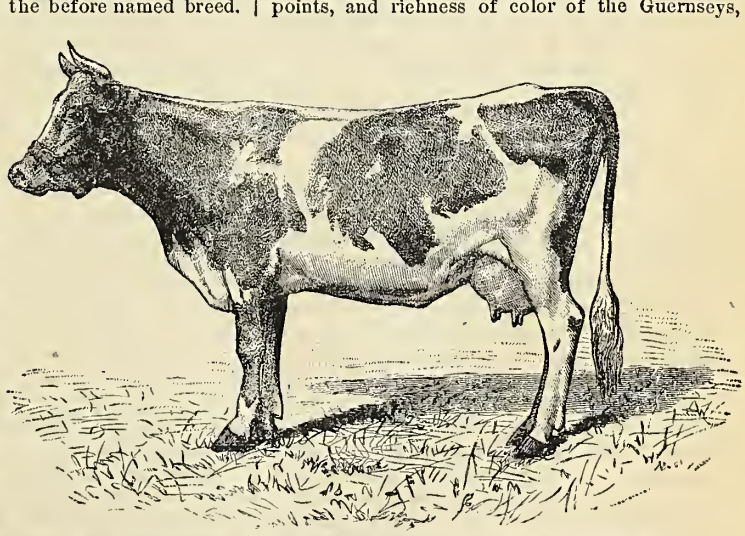


Fig. 3.—GUERNSEY COW "MARIE."—*Owned by E. F. Bowditch, Esq.*

The breeders of Guernseys in this country formed themselves into a "Club" two years ago, for the purpose of establishing a public registration of

their stock and publishing a herd-book. One volume of this official record has been issued, and its popularity has been such as to require two and possibly three editions within the year.

To illustrate the characters of this breed, we have selected animals from the herd of Mr. E. F. Bowditch, Millwood Farm, Framingham, Mass., who possesses some of the best stock of its kind in the country, and give engravings from accurate photographs. The bull "Hubert," (No. 47, Guernsey H'd B'k), was imported by Mr. Bowditch in April, 1877, and was three years old on the 30th of Dec. last, at which age he weighed 1,400, and is regarded as one of the best animals of his age. The cow "Marie" (No. 116) is also imported; she weighs over 1,000, and Mr. B. remarks that as a two-year-old she had the largest bag he ever saw, and he considers her a very fine type of the breed. The heifer, "Miss Alice" (No. 220), is about 2 years and 9 months old, and from July 11th, 1878, to Jan. 1st, '79, her yield was over 12 quarts per day, and Mr. Bowditch wrote on Feb. 22, that she was still giving at that date, between 11 and 12 quarts a day.

## Among the Farmers.—No. 39.

BY ONE OF THEM.

It was about the second week in January that I found myself among the farmers, who are also dairymen, at Utica, attending their meetings, and being edified both by intercourse with them and by the addresses made. There was a discussion, by a knot of Jersey and Ayrshire breeders in one of the hotel parlors, on establishing a true and attested

### Milk and Butter Record for Cows.

There has certainly been more good thinking done on this subject than most are aware of. I have known plans suggested and talked over with great earnestness during these many years, and now it seems as if we were ready for a successful movement.

If bragging ended there—in braggadocio; if lying only affected the liar; if a few imaginative breeders sat down together, or sat down to write to the papers, just to see who would out-yarn the others with assertions about the amount of milk and butter his best cow would yield, the case would be different. But every time a big yarn is told, there are those who believe it, and though founded upon facts, it grows bigger, or is apt to do so. Twelve pounds of butter a week becomes fourteen, the quart or two of skimmed milk given away becomes two quarts of new milk sold and cream taken for coffee daily, and the 14 pounds of butter is claimed, notwithstanding. A good cow that—but let the crowd alone awhile and she will be nowhere. Somebody else's cow makes 18 lbs. a week, "on grass only," of course; perhaps he is of the conscientious ones who "can't tell a lie," and so he takes care not to weigh the milk or the butter, but lets his hired man do it. How these stories would shrink if we could have the cows all in the same stable and pasture, milked by the same hand, and the milk and butter weighed on the same scales! The question is: Is it practicable to establish

### A Testing Farm for Cows,

where they could be as well cared for *as is possible*, brought to their best milking condition by a skillful herdsman, and all treated alike, their milk being churned, separately, often enough to establish its quality, and the amount both of milk and butter which each cow would, and presumably could give, without risk of affecting her health? If this is possible, then we can establish a record book for cows, which for the milk and butter breeds would be the most valuable auxiliary to the herd books that they could possibly have. The opinion of the breeders at Utica seemed to be, that the project of having a farm, or several farms in different dairy regions, working in unison, and on the same principles and system, was hardly practicable, but that it would be much better to employ trained experts who should go to the farms where famous cows or those to be tested are kept, and there make their observations; see the feeding, milking, setting, churning, etc., for a week at a time, at stated or occasional periods, and so get a record for the cows, which would be accepted as authoritative. They unanimously shrunk from sending their best cows to a farm 50 or 100 miles away from home, subject to accidents of transit, to be kept there for a year, or less, or even to be more tested for a month.

How would it be with horses! Would our horsemen consent to have contests of speed settled by *experts* at the different breeding farms, one horse at a time, in presence only of the breeder and his men?—How near to the truth would we arrive?—Would it be different with cows?—I know breeders who will "pull the wool over the eyes" of persons visiting their farms, in the most artless and child-like manner—fill their ears with wonderful stories, and their souls with admiration. In fact, I have "been there" myself, and yet even now, with my eyes wide open, and knowing the tricks of the cow-jockies about as well as the multiplication table, the rule of three, or the *pons asinorum*, I would not trust myself not to be deceived in some way by master or man, milk-maid or butter-maker, if the effort were really made.

Now it must be understood that *one* dishonest breeder or feeder, or butter-maker, whose word is taken, and whose statements on weights and measures are trusted, whose memorandums of the famous performances of his cows are accepted and published as true by the newspapers, establishes the fact that the assertions of interested parties are not to be taken as evidence of any thing, except of the frailty of human nature. I have no doubt that there are hundreds of breeders who would conscientiously understate the yield of their cows, the amount of butter made, and other similar facts, if there could be a shadow of doubt respecting them, and have met with repeated instances of exactly this thing in cases where it seemed to me unreasonable not to take probabilities as facts, so I wish to have my remark respecting cow-jockies applied to them alone.

### Mr. Hardin's Suggestion.

Mr. L. S. Hardin, of Kentucky, now of New York, has done some good thinking on this subject. I believe he rather favors the plan of having the owner weigh a cow's milk daily—that is, at each milking, keep it by itself, if he can, and at any rate as often as once a month through her whole season, set her milk by itself for a week and churn it—weighing the actual butter, and estimating the product of the month from this result. During this whole period he is to be subject to unannounced visits from the "expert" before alluded to, or from different experts, who should thoroughly watch the proceedings and results, and whose findings should constitute a record for the cow. I have already suggested obvious objections, which I really think would prove fatal to this plan.

### Mr. Kellogg's Proposed Plan.

Mr. P. C. Kellogg, of New York, although he is much more interested in horses than in cows, has been ruminating at least a year on this subject, and he and I have frequently compared notes. It was he who made the remark which I once quoted, to the effect that he gives little credence to stories of great performances of either cows or horses (in private) unless he knows "who held the watch on them." I do not know whether he has given his plan to the light yet or not, but understand that we quite agree on the insuperable difficulties attending any plan of inspection of cows on the home farms, and on the feasibility not only of making the tests fairly and openly at a farm and dairy devoted to the purpose, but of securing entries enough to make the contest exciting and of great interest to the entire community. The plan would be to establish one such dairy farm controlled by a society or club who would calculate to make their investment a profitable one—at least to make the cows pay for their board and the care given to them, by their products or in cash, or both, and to offer very handsome prizes to the cows winning the highest honors in several important classes. For instance, we will say $250 for the greatest amount of butter; $100 for the greatest amount of milk; $200 for the greatest amount of cheese, as cascine—$100 for the greatest amount of butter, as compared with the live weight of the cow; the same for butter, compared with food consumed; and so tests might be multiplied and might each constitute a valuable record. It is Mr. K.'s belief that the successful establishment of one such test dairy, say in the vicinity of New York City, would be soon followed by that of others in dairy regions throughout the country, and in this I fully coincide—every thing, of course, depending on the success of the first attempt. These test dairies would need to recognize some common head or organization, and by this central club the records should be kept and published.

In preparing a catalogue of the herd of that discriminating breeder and most estimable gentleman, the late Moses Y. Tilden, some years ago, I alluded to certain non-registered cows, as excluded from the record of the A. J. C. C., but having their

### "Pedigrees Written in Butter,"

a realization of this idea seems to be within the possibilities of the next few years. Something of this kind is the only way by which we can surely and rapidly establish families famous for uniform and great production of butter. Is it not worthy the combined effort of those at least who will be benefited by it—the breeders of the milk and butter races of neat cattle? If we can thus bring towards perfection the races of neat cattle as to milk and butter yield, as the beef breeds have been improved, and as running and trotting horses have been developed, is it not worth the effort?

## Prickly Comfrey—Its Propagation.

Like all other new plants, Prickly Comfrey has had its season of probation; first over-praised, then unfairly denounced, and at last its true merits ascertained through the patient trials of those whose verdict finally fixes its status. Having been prominent in bringing Prickly Comfrey to notice, we are glad that the final result is so favorable. Though it was presented as a matter of news, as a plant that seemed to us "well worth trying," there are some who regard the mention of a plant as a commendation, and while they do not thank us for bringing a useful novelty to their notice, they are swift to blame if a new thing does not meet their expectations. The case with regard to the Prickly Comfrey stands now at the beginning of the third year of its general introduction, about thus:

For those who have rich land, it is a most valuable plant, yielding an immense amount of green fodder, especially suitable for milch-cows, and excellent for other domestic animals. It it not recommended for poor soils, but for those who wish to get the greatest yield through liberal manuring; as one correspondent states it, "it will use all the manure you give it." Milch-cows, horses, pigs, and poultry, all thrive upon it. It often happens that cows will not eat it at first, and must be accustomed to it as shown in former articles. At first, the leaves must be chopped, or cut with a fodder-cutter, mixed with cut hay or other fodder, and sprinkled with meal or bran and a little salt. The cows are fed on this after fasting over night. The next day, the proportion of Comfrey is increased, and so on. It requires but a few days to teach them to prefer unmixed Comfrey. This matter is given more in full in November last, p. 416. This—the reluctance of cows to eat it at first—is the only objection worth considering yet made to the plant, and this is readily overcome. In several of the dairy centers in Massachusetts, the farmers, after a trial, are largely increasing their plantations, and we hear good accounts from other quarters. But the most positive proof that the Comfrey has now an established value, is in the fact that the dealers have made arrangements for large supplies. One seed house of our acquaintance, that at first offered it with caution, has contracted for an immense quantity; and another, which would hardly touch it at first, has arranged for half a ton of the roots.

### How to Make a Start.

Heretofore, started root-cuttings only have been offered, but we understand that this year the roots will be offered by the pound, and the purchaser will make his own cuttings. The plant is one that propagates with the greatest ease; of the smaller roots, every bit from half an inch to an inch long, will, if properly treated, make a plant, while pieces

of the larger roots, of a cubic inch or so, will each do the same. The roots being cut up, the pieces are to be planted in boxes of very sandy earth, or of ordinary loam with an equal bulk of sand. There is little danger of having the soil too sandy. The boxes need not be over three inches deep, and of any convenient size. The cuttings are to be set in these boxes about an inch apart each way, just covered with the soil. No light is needed until the leaves appear, and the boxes may be set one upon another in a warm place in the kitchen or any other room. If one has hot-beds or a propagating house, he will of course make use of these, but our directions are for those who have neither. The temperature should be from 60° to 70°; the boxes should be looked at daily, giving water sufficient to keep the soil *moist*, but not wet or muddy. When the buds appear above the soil, then these boxes must be placed at the kitchen windows or some other light, warm place. The buds may appear on the surface of the root, or between the bark and body of the root as in fig. 1, or they may push from the central portion. Figure 2 shows a cutting made from a piece of a large root, near the crown. The cuttings started any time this month will make plants ready to go out when the ground is sufficiently warm; they are then to be set three feet apart each way. The soil should be well manured, and the plants kept clear of weeds while young. Though the propagation from root cuttings is so simple, there will doubtless be some who are unused to such operations and who may not care to undertake it, or can not give the time to details; such should

Fig. 1.—ROOT CUTTING.

Fig. 2.—PIECE OF LARGE ROOT.

**Purchase Rooted Cuttings,**

or young plants, which are offered by some dealers. These plants may be set out and allowed to grow until they form good sized crowns; then take them up, *cut off the leaves*, and divide the clump into several pieces, as many as can be made, having a bud or crown and a root to each. This division may be done at any time when the ground is not frozen. If the plants are large enough to divide by midsummer, it may be done and the growth from the divisions made then, will be large enough to allow of still another division in September.

## Raising Calves with Skimmed Milk.

A neighbor who keeps a Jersey herd raises all his calves on skimmed milk, and saves a much larger proportion of them than when he allowed the calves to run with the cows. His heifers are quite as thrifty and he thinks reach maturity as early. He continues the use of the milk for several weeks, mingling meal and shorts, until they are old enough to get their living on grass, when they are turned out for the summer. This has not been our practice with Jerseys, as we wished to raise the best specimens of the race for their butter qualities. But even upon the mother's milk we have not infrequently lost the calves. We notice in the last report of our Commissioner of Agriculture an experiment designed to test the comparative gain of calves upon skimmed milk during the early and later part of the season. The milk was fed to ten calves, and the feed and the calves were weighed regularly. During the first week it took 11.02 pounds of the skimmed milk to make one pound of flesh. There was a gradual increase of cost of producing flesh until the ninth week, when each pound of flesh required 17.01 pounds of milk. At this age they began to eat grass, and less milk was required. After the cream is taken from the milk, most of the caseine remains, which is a good producer of muscle, and furnishes every thing but fat that the animal needs. Indian meal contains this, and other nourishment, and is a profitable ration to add to the skimmed milk. The custom of raising calves on skimmed milk and meal, or shorts, is on the increase in the dairy districts, and is found to be safe and profitable. Those who follow the practice are well satisfied with the results. CONNECTICUT.

## A Lever Gate Latch.

The ingenuity shown by a well educated cow in opening ordinary gate fastenings, calls for greater ingenuity in devising latches, and these are usually effective, until the animals learn their construction and make a new invention necessary. Mr. Wm. E. Bower, Clarke Co., Ind., sends us a drawing of a gate lever on which there is no patent. In fig. 1, the device is shown in place upon the gate; the latch, *E*, is raised by the lever, *L*, which works upon the pivot, *B*. It will be seen by taking hold at *L*, and that moving the lever, either to the right or left, the latch, *E*, will be raised; when let go, the weight of the lower end of the lever and the latch will bring the latch into place. Figure 2 shows the lower end of the lever, *L*; it has a mortice in which the latch slides; at the lower part of this is the

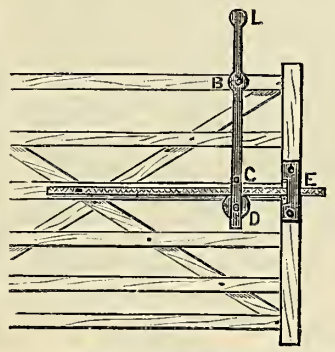



Fig. 1. LEVER GATE LATCH.

Fig. 2.

roller, *D*, upon which the latch rests; at *C* is a pin, placed half an inch above the upper edge of the latch. When the lever hangs at rest, the latch, *E*, can only be raised half an inch, which is not sufficient to clear it from the catch in the gate, but by moving the lever the end of the latch is raised sufficiently to free it. This appears to be easily made and practical, and is sufficiently unlike other latches to puzzle the most expert gate-opening cow.

## A Shed for Feeding or Milking.

A cheap and convenient open shed for feeding or milking, may be built as follows. Posts are set in the ground in four rows 10 feet apart; the posts in the outer rows being 10 feet apart, and 7 feet above the ground, and those in the inner rows, being 5 feet apart, and 10 feet high. Fig. 1 shows the manner in which they are placed. These posts are mortiсed and pinned at the top to plates upon which rafters are laid, and where necessary girts are spiked to the posts. A feed trough is fastened to each inner row of posts, and a hay rack is fixed above each trough; the passage between the rows of posts, is used for the purpose of drawing fodder in a cart or wagon. The spaces between the inner posts, form roomy stalls for the cattle if desired, and if cows are kept, the posts may be placed 7 feet apart, and double stalls holding two cows each may be made. A tight roof is made overhead, and the gables and part of the sides and ends may be closed in; or the whole may be closed in and turned into a roomy comfortable stable. At fig. 2 is shown the end view of a section of the building, with the feed-troughs and hay-racks. By a little change, this

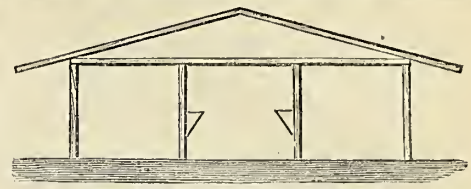


Fig. 2.—END-SECTION OF SHED.

kind of shed may be made to serve as a covered yard for cattle, and a receptacle for saving manure.

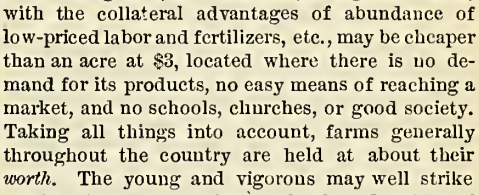


Fig. 1.—PLAN OF POSTS FOR SHED.

## Cheap Farms Near New York.

"Can I get a small cheap farm near New York? I don't want to 'go West' at my time of life, with a family of daughters yet in school, but I have not the means to pay for a dear farm." Such is the burden of many inquiries—especially since the depression in manufacturing and trade has turned the attention of multitudes to farming as a means of livelihood. Many hundreds of thousands have gone to the newer regions, but, for many, age, family, dependent relatives, or other causes, make a distant migration undesirable if not impossible.

Cheap and dear are relative terms. One machine may be dear at $50, while another, resembling it externally, may be cheap at $100. Land is the cultivator's machine for producing crops. An acre of land costing $300, if near a ready and good market, with the collateral advantages of abundance of low-priced labor and fertilizers, etc., may be cheaper than an acre at $3, located where there is no demand for its products, no easy means of reaching a market, and no schools, churches, or good society. Taking all things into account, farms generally throughout the country are held at about their *worth*. The young and vigorous may well strike out into the newer regions and take advantage of the unexhausted native fertility of the soil, grow up with the country, and wait the coming of railroads, neighbors, schools, society, and markets.

For others, there are lands at the East which are cheap, whatever their price. And there are also plenty of low-priced lands within 20 to 50 miles of New York, Philadelphia, and Boston—lands obtainable at $10 to $50 per acre because they have been subject to a slip-shod treatment that has kept the cultivators poor, and scared away everybody else. Secretary Gold, of the Conn. State Board of Agriculture, in recent addresses, has given some good advice about the idle lands in that State, growing brambles, brush and weeds, where they ought to be producing profitable crops. If the authorities in the older Eastern States would take the same measures to enlighten the public about the agricultural capabilities of these States, as are taken by some of the enterprising Western and Southern States, it would be of great service both to the people and to the Commonwealths.

To go back to the text question above. There are at the gates of this Metropolitan City, in New Jersey, in Eastern New York, in Western Connecticut, and on Long Island, plenty of available cheap farms and low-priced lands that can be made profitable by those who will inform themselves thoroughly as to the best methods of treating them, and of applying the recent results of agricultural science. Take Long Island for example. Here is a stretch of a hundred miles lying on the shore of the Atlantic, whose waters furnish fish and sea weeds for fertilizers. The air is tempered by the winds coming up from the Gulf Stream. Nearly the whole Island might well be, and is to be, a great market garden for the millions living in New York and its near suburbs. For miles out it is already so, wherever speculation has not cut up the land into "city lots." A net-work of railways brings every part of the Island within one to three or four hours of the city markets. The wise and enlightened present management of these railroads, affords every facility to the cultivators, as, during the active seasons, freight trains stop even along side of farms distant from stations, to take up farm produce, and

deliver it right into the city markets when desired. When, in ancient times, New England occupied a higher level, a vast mass of surface soil was, by glacier action, slid out, so to speak, upon the sandy bottom of the ocean. Dig down far enough anywhere upon the Island, and you will strike the original ocean sand bed. In some places this imported soil is hundreds of feet thick; in others only a few feet, and occasionally only a few inches. The last named spots are too leachy to retain moisture or fertilizers for profitable culture. But the great mass of the Island has a fair depth of good soil, and there is a large amount of good land awaiting the skill and labor of active and intelligent cultivators. Thousands of thriving homes will ere long be found where now there is a comparatively sparse population, and a considerable portion of the occupants are devoting their attention to gathering the products of the adjacent waters rather than the products of the soil. Some of these lands are still obtainable at a low price, much below that asked by speculators a few years ago. One only needs skill enough, or the advice of those who do have it, to avoid the extreme shallow soils referred to, in order to secure good land at very reasonable prices. Except as to the peculiar formation named, the above remarks apply to portions of New Jersey, Connecticut, and Eastern New York. The continued growth of this city, which is doubtless soon to be the great commercial Metropolis of the world, will enhance the value of these lands by furnishing a demand for all that can be produced upon them.

## New Dairy Appliances.

Of the newer aids and helps towards perfect cleanliness in the dairy, we have the milking pail and the strainer, described below. It is a rather startling consideration that so many new contrivances should be continually introduced for the sole object of providing for cleanliness. It is a fact, nevertheless, that some provision for forcing clean practices upon dairymen is absolutely needed. With a plain, open, ordinary pail, milk may be drawn with perfect freedom from all disagreeable matters, even so much as a hair. If the cows are carded and

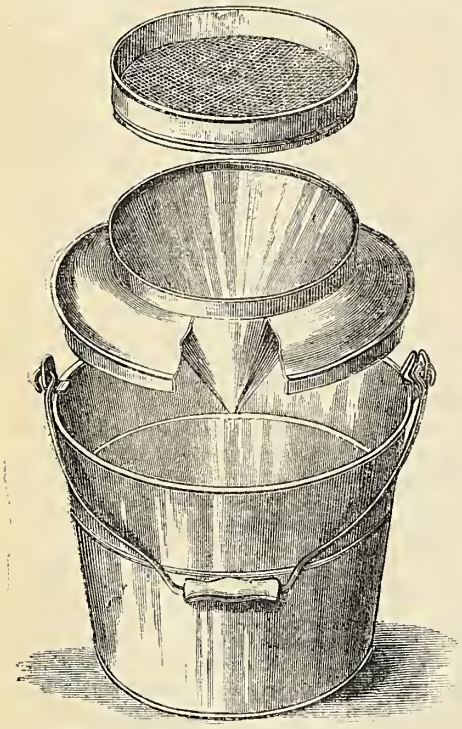


Fig. 1.—MILK-PAIL WITH STRAINER.

cleaned before they are milked, there may be no need for strainers upon the pail, or for strainers so arranged that foreign matters can not pass through them. But the fact is, many farmers and dairymen can not be induced to keep their cows clean, and therefore means must be provided to preserve the milk from contamination. Figure 1 represents a tin milking pail provided with a conical funnel and a wire gauze strainer above it. The milk is drawn into the strainer, and passes through it free from any accidental hairs, or other impurities, into the funnel, and thence into the pail. (A portion of the cover is cut away to show the funnel—of course, the real cover is entire.) If any restless cow upsets the pail, the milk will not be lost, because it can not flow out unless it is nearly filled, and then only a small quantity will escape at the worst. After a few trials with this pail, we conclude that while a neat and clean milker may not need it, yet it will be handy for him to have in case of accident, and that every careless milker may do well to have one and use it always. The same remark will apply to the strainer, shown at fig. 2. This consists of a seamless bowl, shown at the top, a conical strainer of wire gauze which screws into this, a second strainer of coarser gauze which fits over the first when it is needed, and a ring upon which the strainer may rest when in use. The purpose of the conical strainer is to prevent clogging of the gauze by sediment as this falls to the bottom, remaining in the rim, and does not pass through the cloth. This is a useful contrivance, and is the chief peculiarity of the strainer, and from which it takes its name of More's Pyramidal Strainer. The second and coarser strainer is used when, from any cause, the double straining may be thought advisable.

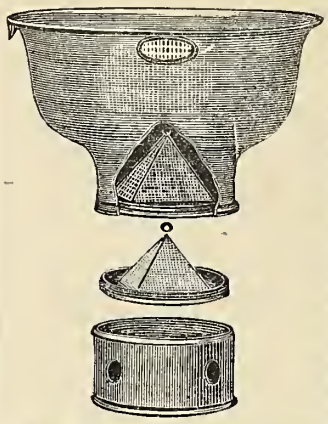


Fig. 2.—PYRAMIDAL STRAINER.

## Hints and Helps for Farmers.

An item in the "Basket" for January last, which was headed "Send us Sketches for Engravings," has had two very pleasant results; it contained a general request to those having any contrivance or appliance that they found useful, to forward us sketches, that we might illustrate and make known the same to a million other readers. The two pleasant results are: the receipt of a large number of such sketches, as the profusion of small engravings in last month's paper and the present number bear witness, and the manifestation of a willingness on the part of our readers to help one another.

**The Invitation is here Repeated,**

and with emphasis. Recent experience has shown that numbers, if they know that such are welcome, are ready to send the results of their ingenuity in the way of labor-saving-and-helping contrivances, and we would say to all, that we wish to make this column what its heading indicates, one of real helpful hints to farmers. Though we shall use such illustrations in other parts of the paper, it is intended that the most important shall appear in this column. Do not refrain from sending a device because it is simple, and "one that any one would think of." It is the very simple affairs—those that, when once seen, make us wonder why *we* didn't think of them—that are generally the most useful and those that most need to be known. Do not withhold a sketch because you can not draw. Any one who can write his name can make such a sketch that, with proper measurements marked upon it, will be understood, and a few lines often give a clearer idea of an affair than a long description. Don't hesitate because your sketch is rough and rude: it will come to us confidentially, and our pencil, with the aid of our artists and engravers, will put it in proper shape for the public eye. We wish to make this

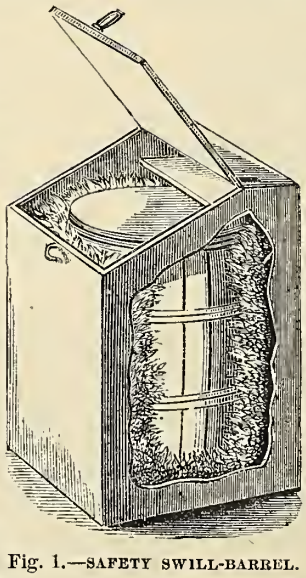


Fig. 1.—SAFETY SWILL-BARREL.

**The Farmers Own Column,**

to which each one can contribute, feeling that he is helping his brothers, and to which each one can come, to see what his brother farmers are doing to help him. With thanks to those who have Hinted and Helped, let us all do so still more freely.

A Box for Salt.—Our correspondent, L. D. Snook, Yates Co., N. Y., sends us a design for a stationary salt-box, which may be attached to the fence, and allows stock at pasture to help themselves to salt at will, and at the same time protect the salt from loss by rains, or one may be placed in the barn-yard, where the animals can reach it. The box, as shown in the engraving (fig. 2), is a

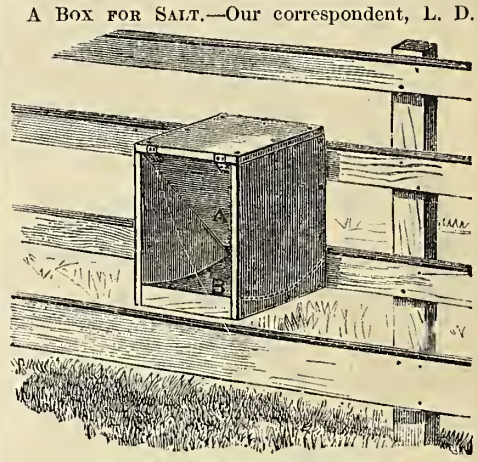



Fig. 2.—SALT-BOX FOR CATTLE.

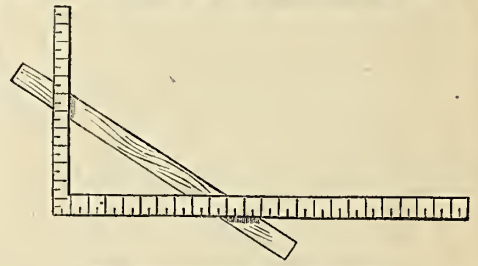


Fig. 3.—MEASURE FOR RAFTERS.

foot high and seven inches square, with a door swinging inwards and hung at the top. The bottom of the box may be hollowed out, for the better reception of the salt. Where there are many animals, it is better to have several boxes, as this will prevent interference. If the door is fastened open for a few days, until the animals learn the locality, they will soon learn to push it open themselves.

A Safe Swill-barrel.—The ordinary slop-barrel is a fatal trap to fowls, which, tempted by the contents, are lured into it and drowned. It also freezes in the winter when exposed without protection. A contrivance for covering it and for preserving it from frost is shown at fig. 1. It consists of a box built around the barrel, leaving a space of a few inches, which is filled with chaff or cut straw. The box has a shelf near the top, upon which the dipper may be kept, and is covered with a lid, to prevent fowls from getting into the barrel. The lid should be so made that it cannot be left open.

Contrivance for Measuring Rafters.—The method of measuring rafters recently described in these columns, seems to have been patented, though it has been in use, to the writer's knowledge, for over 25 years. That it is patented, will necessarily prevent carpenters and others from making use of the contrivance, lest they may be annoyed with a law-suit, or a claim for royalty, but the method itself is not subject to a patent, and can not be, al-

though the tool by which it is used may be patented. A correspondent sends us his method, which is as follows: Lay the square upon a piece of board

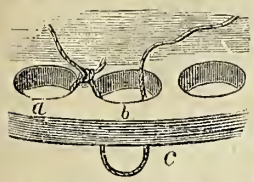


Fig. 4.—LOOP OF CORD.

of the width of the rafter, so that the half-width of the building in inches is marked on the blade, and the pitch of the roof on the tongue (see figure 3). Mark the pattern on the board, and then measure the distance between the marks in inches and fractions, which will represent the number of feet in length the rafter should be from heel to point. This plan can not be interfered with by any patent.

A HORSE-BRUSH OF CORN-HUSKS.—"J. M.," of Burlington, N. J., sends his method of using the back of an old horse-brush, by filling it with strips of corn-husk. It makes so useful a brush that we think it would be worth while, if no old backs are at hand, to make it anew throughout. Whether an old back or a new is used, the method of operating is the same. The engravings, 4 and 5, show but a part of a back with a few holes, to give the method of working. Bore the back as full of half-inch holes as practicable; have a stout cord, and some strong husks shredded into strips half an inch or so wide. To begin, pass the cord down through the hole *a* and up through *b*, fig. 4; tie in a tight knot; then, with a button-hook or a hooked wire, pull the cord down through *b*, again, to form the loop *c*; now take a small bunch of the stripped husk, put it half-way through the loop, pull on the cord, and this will bring the tuft of husk into place, as in figure 5; pull down the cord through *c*, fig. 5, to make another loop, put in the husks and pull them into place as before. Continue in this manner until the holes are all filled, and make fast the cord. Trim the ends of the husks evenly, to make them about 1½ inch long, and finish by putting on a strap for the hand, as in figure 6. This makes a most useful stable brush to remove mud from a horse or other animal, and excellent to give a thorough rubbing down after performing a hard day's work.

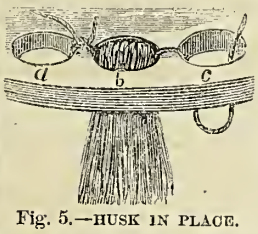


Fig. 5.—HUSK IN PLACE.

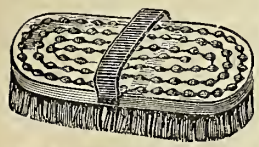


Fig. 6.—BRUSH COMPLETE.

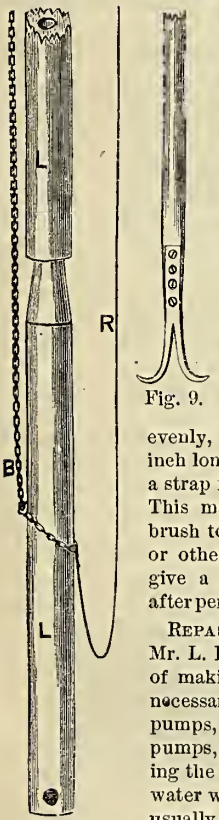


Fig. 7.


Fig. 9.

REPAIRING WOODEN PUMPS.—Mr. L. D. Snook sends his method of making repairs of a kind often necessary in the spring. Wooden pumps, whether suction or chain-pumps, often become crippled during the winter by the freezing of water within the log during an unusually cold spell. If it is desired to remove the log-tubing from a well for this or other purpose, it is most readily done as shown in figure 7. A slip-noose is formed in one end

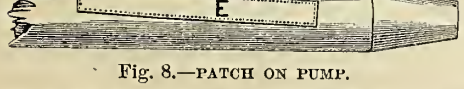


Fig. 8.—PATCH ON PUMP.

of a small linked chain, *B*, and slipped down over the first section and half way down the next, when it is drawn tight. The log is then raised bodily, until the lower part of upper section is within a foot or two of top of platform, when, by quick moves to

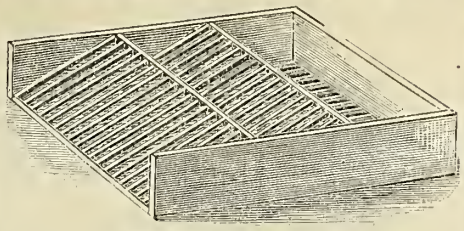


Fig. 10.—FISH TRAP.

the right and left, the upper section may be loosened and lifted off, and as there are usually but two more sections, they may be pulled up and removed without separation. To aid in removing the chain, when the pump is lowered again after repairs, a strong twine is attached to the noose, as shown at *R*. By pulling the string tight and loosening the chain a trifle, it may be easily slipped upwards and off. If a section cracks by freezing, remove it from the well, let it dry, and calk the seam with tow or fine wool; over this lay several thicknesses of dry cotton cloth, and upon this nail a strip of tin, as shown in figure 8. If the leak is a bad one, a double row of nails should be used. Paint the tin to prevent rusting. This method of stopping a leak is cheap and more efficacious than having an iron band shrunk upon it by the blacksmith. Should the chain of a chain-pump break and both ends fall out of reach, they can be picked up with an affair like that shown in figure 9. An iron bent in the form there shown is attached to a pole of sufficient length to reach the bottom of the well. To put on a chain without removing the tubing, lower one end down inside of the tube, and with this hook pick up at the bottom the end thus lowered.

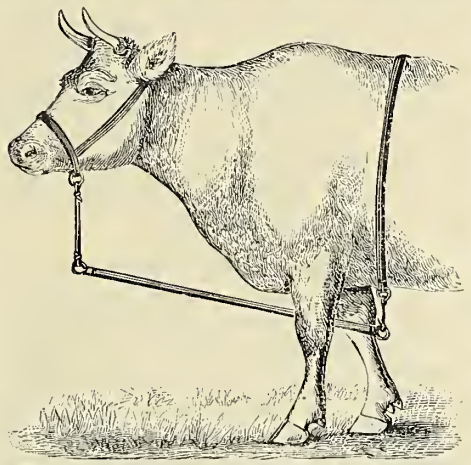


Fig. 11.—DEVICE TO PREVENT SELF-SUCKING.

SELF-SUCKING COWS.—A reader sends a method of preventing cows from sucking themselves. It consists of a stout rod of tough wood fastened to the halter and to a ring on a circingle or strap buckled around the body behind the shoulders, as shown at fig. 11. The strap between the rod to the head-stall, is about 12 inches long, and leaves the head free to graze or feed, but not to reach the udder to suck. Other devices are given in former volumes.

A FISH TRAP.—"J. P. R.," Osage Mission, Kansas, asks how to make a fish-trap for small streams. One method is shown at fig. 10. It is a box with 3 sides only, and open at the front, with a bottom made of narrow strips one inch wide, and a quarter or half an inch apart. There are two sloping frames of laths made in the same manner as the bottom, fitted into the box as shown in the engraving. The trap is set at the point of a low < shaped dam, or bank of stones, or brush, by which the water is raised so as to flow over the edge of the slatted frames, and pour through the bottom of the box into the stream below it; 10 to 12 inches is high enough for this purpose. The fish descending the stream, being led into the trap by the converging lines of the dam, pass with the water over the slatted frames, and fall into the box behind them, where they remain until they are taken out. The trap should be visited two or three times a day to take out the fish. At certain seasons of the year, when migratory fish pass down the streams, these traps take every fish, and their use is illegal in some States, on account of their destructiveness.

## Caponizing—How it is Done.

Strange as it may seem, we have met with a number of ordinarily intelligent persons who supposed a Capon to belong to a distinct race of fowls, as do Games, Bantams, etc. For fear that others may have a similar notion, it may be well to say that a Capon is an altered male fowl, and bears the same relation to other fowls that an ox does to a bull, a wether to a ram, etc., and may be produced from any breed of fowls. A capon brings in market 50

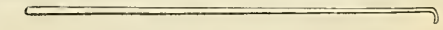


Fig. 1.—HOOK.

per cent more than an ordinary fowls, and often double the price of common male birds; besides, a

Fig. 2.—TWEEZERS.

capon will reach double the weight of a common fowl at the same age. As there is no difficulty

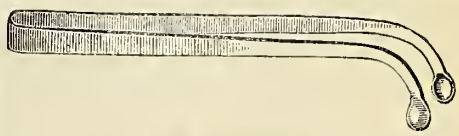


Fig. 3.—FORCEPS.

whatever in caponizing, and the instruments cost very little, the practice might become very general. Having practised the operation for several years, the writer can truly say that by using no more care, and with no more skill than are needed in operating upon a male pig, not more than one out of 30 or 40 fowls need be lost. For several years the writer has operated on from 12 to 30 fowls each year, and the loss during that time has not been more than five or six birds in all. The operation is best performed upon chickens about 3 months old, although it will succeed, if carefully done, with the majority of fowls when they are 10 or 12 months old. As with many other operations, this is one that can be learned most readily by seeing it done, and we advise those who would undertake it to procure instruction wherever it is available. Still, if one has a little confidence, he will meet with success if the directions here given are carefully followed. In the first place, a table is needed in which a few screw rings are inserted at convenient places; these are furnished with broad tapes, by which the bird

Fig. 4.—SPRING HOOK.

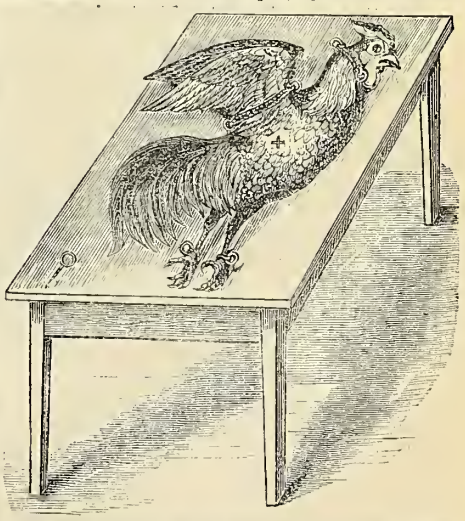


Fig. 5.—OPERATING TABLE AND POSITION OF FOWL.

is securely held during the operation. The best plan for a novice is to kill a bird and operate upon that first, in order to learn the position of the parts.

Lay the dead bird upon the table, dispose it as hereafter described, and then place the screw rings where they would be needed to secure a live fowl. One or two will be required to hold the wings, and one for each leg; six will be all that will ever be necessary. Place the bird upon the table, and fasten it down upon its left side, as shown at fig. 5, where the rings and tapes are seen. The spot where the opening is to be made is shown by the ×. Here the feathers are plucked, and an opening is made through the skin with a pair of sharp-pointed, long-bladed scissors. We have found these better than a knife. The skin is drawn to one side, and an opening is made with the scissors between the last two ribs for an inch and a half in length, great care being taken not to wound the intestines. The ribs are then separated by the spring hooks, fig. 4, so as to expose the inside. The intestines are gently moved out of the way with the handle of a teaspoon, and the glands or testicles will be seen attached to the back. The tissue which covers them is torn open with the hook, fig. 1, aided by the tweezers, fig. 2. The gland is then grasped with the forceps, fig. 3, and the cord is held by the tweezers. The gland is then twisted off by turning the forceps, and when this has been done the other one is removed in the same way. Care must be taken not to injure the blood vessel which is connected with the organs, as this is the only seat of danger in the operation, and its rupture will generally be fatal. The hook is then removed, and if the skin has been drawn backwards at the outset it will now slip forward and cover the inner skin which covers the intestines, and close the opening. No stitching is needed. A few feathers are drawn together on each side of the opening and plastered down upon the skin with the blood, where they will dry and form the best possible covering to the wound, which will begin to heal at once. The bird should be fed with a very little soft bread and milk for a few days after the operation, but should have a plenty of water. For two nights and one day before the operation, no food nor water should be given to the birds; this will greatly facilitate the work and reduce the chances of loss. The operation, after a few successful trials, may be performed in less than one minute, and by the use of the rings and tapes, no assistance is needed. Capons may be made to earn their food by fostering young chicks, to which business they take very kindly. To bring them to their full and most profitable size, they should be kept until the second year. By giving them corn-meal steeped in warm milk, and providing a warm house, they will grow during the whole winter, and their flesh will become very white, sweet, and juicy. A good capon of Light Brahmas will weigh 12 to 15 pounds, at 22 months old, and will bring at the holiday season $2.50 to $3.00 each. The instruments above described are to be procured of H. H. Stoddard, Esq., Hartford, Conn.

## Door and Gate Fastenings.

Door fastenings give much trouble about farm buildings. Ordinary latches are too weak, and are useless in a short time. The most useful fastenings are those which can be made cheaply by any blacksmith, and which can be fixed upon the doors by means of bolts, or such bolts of wood as can be made at home. In all cases they should be so arranged that animals can not open them. For gates, a heavy wooden bolt made to slide into a catch in the post, and held there by a falling pin, will be found strong and useful. This is shown at fig. 1. The latch slides in two iron bands bolted to the bar of the gate, and passes through a mortice in the gate post. It passes also through a mortice or strap upon the fence post, to which a drop pin is attached by iron band loops, as shown in the engraving. The pin is kept from falling too far by a small knob at the upper part. When the latch is shut the drop pin is lifted by the sloping end of the latch, and drops into the notch, which holds it securely. The latch is moved by means of a pin near the gate-post, and this prevents it from going too far through the mortice. A bolt for a barn or stable door is shown at fig. 2. This is placed inside, and is moved by putting the hand through an opening in the door. The door is provided with a spring by which it is kept shut when not used. A very safe and simple fastening for barn and stable doors is the bolt and key, shown at fig. 3. This bolt is moved by a key, shown in the engraving; the shaft which should be very firm, is hinged, so that the lower half falls over when it is passed through a small hole in the door just above the bolt, and moves the bolt by catching on a projecting pin between the straps. If every door about the buildings is provided with this bolt, one key will open and fasten all of them.

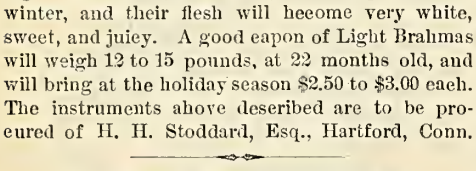


Fig. 1.—LATCH WITH DROP.

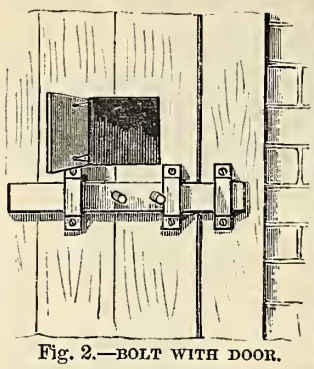


Fig. 2.—BOLT WITH DOOR.

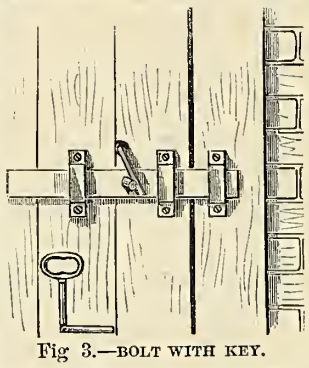


Fig 3.—BOLT WITH KEY.

## Editorial Correspondence From the Far West.

### Too Much Legislation.

The new States are avoiding one of the evils which has borne heavily upon the majority of the older States; I allude to too much Legislation. In Nebraska and Colorado, the Legislative bodies convene only once in two years, and the Legislatures of Minnesota and Wisconsin have now voted, almost unanimously, to substitute the biennial for the annual sessions. "The least governed the best governed;" "the fewer and simpler the laws the better;" are old maxims, and it is gratifying to observe that Maine and Connecticut are following the example of the Western States in this matter. All the other Eastern, as well as the Middle and Southern States, should not delay action in the same direction, and if the farmers would consider the benefits resulting therefrom, they would compel such action on the part of their representatives. Take New York State, for example, concerning whose Legislature I can speak from personal experience. Every year this body convenes, it entails upon the State an expenditure of $312,000, of which sum the Senate spends $54,000, and the Assembly, $258,000. If any advantage accrued to them from this large expenditure of public money, the people might be reconciled to it, but the bulk of the time of one session is consumed in repealing or amending enactments passed by previous sessions. Especially is this true, where the political complexion of successive bodies undergoes a change, and first one party and then another party gets the upper hand. People through the State are kept in a condition of disquietude and the final adjournment brings them the same sense of relief which is experienced by the Nation at large when Congress disbands. There is a considerable class in New York State who come to be professional hangers-on at Albany, and look to the winter's session for their bread and butter. The lobbyists or legislative corruptors find encouragement and gain in yearly sessions. These annual sessions are productive of many other evils, all of which might be avoided or materially mitigated by substituting bi-ennial or tri-ennial. What is true of New York is true, to a greater or less extent, of all other States. If the Legislatures convened but once in three or five years the people would then be able to procure about all the legislation their wants required, especially with a few wholesome general laws conferring upon local bodies and authorities the power for enacting local legislation. This is a matter in which the hosts of the *American Agriculturist* readers in all the States are personally interested.

### Courteous Railway Officials.

The urbanity of conductors and other employees on the railroads contributes materially to the pleasure of travel in the West and North-west. Every one is impressed with their obliging disposition and civility as contrasted with the impatience and often rudeness of the average railway employee in some older States. In journeying ten thousand miles over the roads in Illinois, Iowa, Wisconsin, Minnesota, and in the vast country west of the Missouri River, I have everywhere found conductors, ticket agents, baggage-men, and brakesmen ready and willing to answer inquiries, and to contribute every way in their power to the comfort and pleasure of travellers. It is a common thing for the conductors on the long stretch of the Union Pacific Railroad to voluntarily seat themselves near you and point out the various objects of interest as the train speeds through Nebraska, Wyoming, and Utah. This is a new and pleasant experience to one whose railroad travel may perhaps have been confined to the Eastern States. Perhaps one explanation of this civility and courtesy lies in the fact that the railway trains in the newer States are less crowded, and the employees have therefore more time to be accommodating. But there is always time to be civil, and it is apparent that the Western roads make a point of securing employees who will be polite to the public. The Eastern would do well to pattern after the Western railroads in another matter—that is, in rewarding and promoting faithful servants without regard to outside influences. Some of these roads frequently undergo change in the general management and control, but the rank and file of the employees are retained in their places to be promoted as zeal and fidelity entitle them to it. Not long ago three engineers on the Peninsula branch of the Chicago and North-western Road, who had been faithful as engineers, were surprised one morning at simultaneously receiving their commissions as conductors of passenger trains. There is good management in acts of this kind.

### Prefers to Remain.

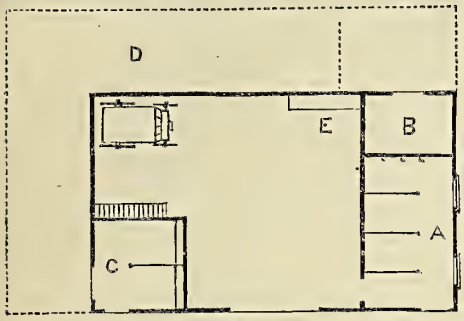
Nebraska contracts with Mr. Stout to maintain the inmates of the State prison, near Lincoln, for 60 cents a head, and Mr. S., in turn, employs the convicts at a variety of labor. One of these, a murderer, sentenced for life, herds a drove of cattle on the prison farm, and can be seen any day on horseback, flourishing his long whip, and keeping the cattle in line. He leaves his cell early in the morning to join his herd, and returns at night to his secure quarters. The explanation of the freedom allowed this convict, is found in the fact that, not long ago, he frustrated efforts made by his friends to secure his pardon, declaring that he preferred to remain in the prison to going elsewhere.

### Rival Fairs.

There is a somewhat amusing rivalry between the cities of St. Paul and Minneapolis, which are only about twelve miles apart. St. Paul is a commercial city or distributing point, while Minneapolis is a manufacturing place, so that there should not be any rivalry between them. This last autumn they vied with each other in endeavors to have the largest fair. There was an immense concourse of people at both fairs, and a creditable display of cereals, fruit, etc. One coming to Minnesota naturally visits Minnehaha Falls, and is disappointed at finding a miniature waterfall. It is not generally known to the public that there are two other pretty cascades near by, one of which the people living hereabouts have facetiously named "Minnegiggle."

## A Convenient Small Barn and Stable.

A plan for a small barn and stable to accommodate two cows, two horses, and a carriage, a place for pigs, with yard, and conveniences for feeding and for handling manure, is given herewith. The building is 38 x 24 feet, and may be 16 feet to the eaves. It is divided into a two-stall stable, with harness room and a passage to the barn floor or feeding floor. The pig-pen is shown at *B;* into this the litter may be thrown from the stable through a half door made to close tightly. The cow-stable,




PLAN OF CONVENIENT STABLE, YARD, ETC.

*C*, for 2 cows, opens into the yard, *D*, as well as at the front. There are conveniences for feeding all the animals from the main floor, and a place for the carriage is provided, as shown in the plan. A stairway leads to the upper floor, where hay and feed may be stored. The cost of such a building should not be more than $200 (or but a little over that), all completed. The whole floor should be of 2-inch spruce or oak plank; the frame of oak or spruce, with 8 x 6 sills, 6 x 6 corner posts and plates; the beams 3 x 8, and the studs 3 x 4; the boarding may be of dressed pine, 12 inches wide, and battened, and the upper floor of matched boards, to prevent dust falling through.

## A Portable Shelter for Sows.

Those who raise swine upon a large scale in the great corn-producing States, find it very necessary to have a shelter for their sows at pigging time,

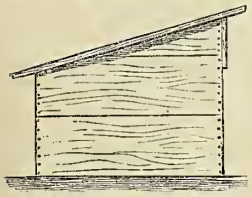


Fig. 1.—END VIEW.

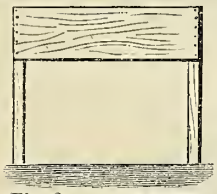


Fig. 2.—FRONT VIEW.

and several portable pens have been devised for such use. "Mr. G. N. M.," of Shawnee Mound, Ind., sends us sketches of a pen of this kind, which seems to meet all the requirements of affording shelter, protecting the young pigs from injury by the sow, of portability and ease of construction. Figure 1 shows an end view, fig. 2 the front, and fig. 3 a perspective view, giving both front and end.

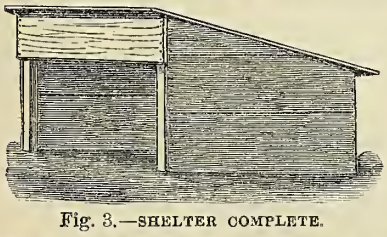


Fig. 3.—SHELTER COMPLETE.

For pens of this kind, planks 12 feet long, 12 inches wide, and one inch thick, and others of the same length and thickness but 10 inches wide, cut to the best advantage; scantling 2 by 2 inches is needed for the corner posts. For the ends and back, the 12-inch plank is cut into four pieces of 3 feet each; the 10-in. plank is cut from corner to corner to make the slope for the roof. For the front, a 10-inch plank, 5 feet long is nailed to two pieces of scantling 3 ft. 10 inches high. The sides are put on as in fig. 1; the rear and sides are nailed to other corner posts, and a roof is nailed on to complete the whole. Mr. M. supplies the pen to the sow when she has made her bed, and finds the size is such, that she cannot hurt the pigs, as they have sufficient room in the corners. It is so light as to be readily turned, when the direction of a storm makes it necessary to afford protection from a particular quarter. He regards this, all things considered, as the best shelter that has been tested in his and the adjoining States. When out of use, they are stacked in an open shed, or piled in the field and covered with boards.

## Gardens.—Where Does This Hit, and Fit?

A correspondent, whose name and locality we omit by request, writes:—"I have been looking about and figuring up, with this result: Around me there are twenty farms, averaging over 100 cultivated acres each, and not bad farms either. Excluding the patches of early corn and potatoes, the total amount of space devoted to house gardening is less than one acre on the whole twenty farms—not one acre in 2,000!....On two farms there are good gardens; on some hardly an apology for one. ....I have for the first time succeeded in getting up a small club of subscribers for the *American Agriculturist.* Can't you stir them up on this garden question?...."—This is a pretty hard report, but it partly applies in far too many localities. Still, we can see that, though it goes on slowly, the past ten years have shown an improvement, and we trust to see it more marked in the future. At all events we shall work to this end. We have something to say on the subject in another article.

## How to Mend a Rope.

A splice is made by untwisting the strands of each end for a foot or 18 inches, as shown at *a* (fig. 1). When the twisted parts are brought together singly, one end of the splice is bound with a piece of cord to hold the parts while one-half the splice is being made. Then by means of a smooth and greased wooden peg, seen at *b*, the second of the rope strands is loosened and raised, so that the upper loose strand can be passed under it, and drawn tight. The next strand is raised by the peg, and the second loose strand passed under it; and so with the third; each loose strand passing under and over the twisted strands alternately. This is again repeated, and the strands drawn tight by aid of the wooden peg. The loose strands are then shaved down gradually to a point, and the previous operation repeated until the joint is made quite secure; when the ends of the strand are cut off an inch from the rope. This is shown in part at *c*. To make a smooth joint, the splice, after the loose strands are twice passed beneath the twisted ones, they may be opened, shaved down, and spread over the rope; the splice is then bound very tightly with spun-yarn or tarred twine, and beaten hard with a mallet. It is always best to have all the pulleys large enough to admit of mended ropes passing over them without any hitch.

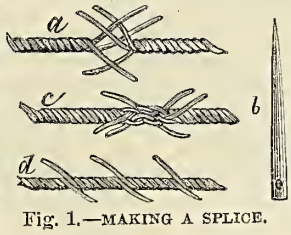



Fig. 1.—MAKING A SPLICE.

A long splice makes a neat job, and is shown at *d*. Bring the untwisted ends together, as in the previous case; then untwist one strand for a foot or more, and fill up the space with the opposite loose strand, beating it down firmly. Then turn the rope, and unwind a strand, filling the space with the opposite loose strand, and securing it temporarily. The long strands just unwound are then cut off, and the ends temporarily secured.

Fig. 2.—CLASPS.

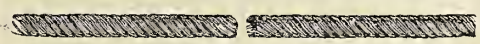


Fig. 3.—THE ROPE READY FOR THE CLASPS.

The remaining loose strands are split into two equal parts, and each crossed with the opposite half strands; twisting the two joined half strands together, and passing them under two or three strands of the rope, as in the short splice above described. Do the same with the other loose ends, heat the splice down, and stretch it to make a smooth joint. To mend a rope not used for tackle, take thin sheet copper, made as shown in figure 2, which will clasp the rope for a foot or 18 inches. Cut the ends of the broken rope off square, and bring them together; fit them into the copper clasps, holding

Fig. 4.—THE ROPE MENDED.

them in a vice. Then make holes through the rope where the holes appear in the clasps, and rivet the parts securely. The mended rope appears at fig. 4.

## How Cream Cheese is Made.

A very rich and toothsome cheese is made of pure cream, and eaten while fresh. This is sold in the

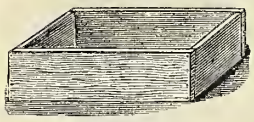


Fig. 1.—FRAME.

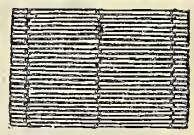


Fig. 2.—MAT.

English and French markets at a high price, generally for more than butter, and is often made in country houses for domestic use. The cream is taken from the milk as soon as it is thick, but while yet sweet, placed in a muslin cloth, and hung up to drain over a pan in which the drippings are caught. After hanging in this way in an airy, clean dairy-room for 20 hours, it becomes firm enough to be placed in the moulds. The mould is a small wooden box or frame about 5 inches long, 3 wide, and 1¼ thick, without bottom or top (figure 1). This is placed upon a layer of clean smooth straw, and a mat of rushes, made as shown in figure 2, is placed under it. The cream is then put into the mould, which is lined with a neatly fitting square piece of muslin folded at the corners; this is turned down over the cream and a second mat of rushes, which fits the mould, is laid upon it (figure 3). A block of wood and a light weight is placed on the mat to press the cream into the shape of the mould, where it remains until it has become set to the shape, which is in two or three hours. The cheese is marked on the top and bottom by the rushes of the mats, which give it a corrugated appearance. It is fit for use as soon as it is set. When sent to market it is not removed from the moulds until it is sold for use. No salt is used in the preparation; this is added as it is eaten. The ordinary price of this cheese is the same as that of the best butter. When made for home use, and eaten fresh, it is a choice delicacy. It is sparingly made in the vicinity of New York, and sent to market wrapped in tinfoil.

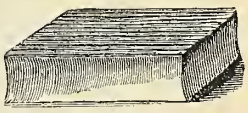
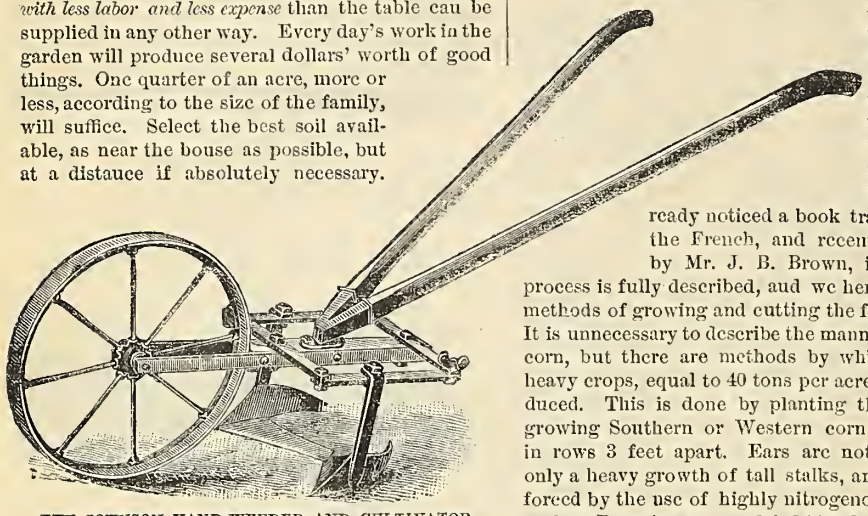


Fig. 3.

## What Garden Have You?

The best paying plot on any farm, and the one yielding the most enjoyment, too, is the Vegetable Garden—or "Kitchen Garden," as it is frequently called, and quite appropriately, especially when the "Kitchen folks" have the chief or sole care of it. A good supply of garden products for the table *costs less* than the standard bread, meat, and potatoes, is more healthful and nourishing than all corn beef, salt pork, and the small assortment usually found on the farmer's table. Need we add anything about palatableness, comfort, home enjoyment? Contrast a table set nearly the year round with bread, salt pork, corned beef, potatoes, boiled cabbage, varied with hash, mush, buckwheats, and occasionally a few other items, with a table well supplied in succession and abundantly with Asparagus, Green Peas, Lima Beans, String Beans, Sweet Corn, Radishes, Carrots, Beets, Parsnips, Celery, Salsify, Turnips, Cauliflower, Spinach, Lettuce, Egg Plants, Tomatoes (all the year), Rhubarb, Okra, Squashes, Onions, Cabbage, Cucumbers (?), and other things,—filled in with Currants, Strawberries, Raspber-

ries, Blackberries, not to mention Grapes, Pears, etc.—We do not accept the standing excuse, "I am too poor, too hard driven, too much to do in my fields, to bother with the garden." We repeat, *with emphasis*, that every farmer can have most, if not all the above pleasant and healthful variety *with less labor and less expense* than the table can be supplied in any other way. Every day's work in the garden will produce several dollars' worth of good things. One quarter of an acre, more or less, according to the size of the family, will suffice. Select the best soil available, as near the house as possible, but at a distance if absolutely necessary.



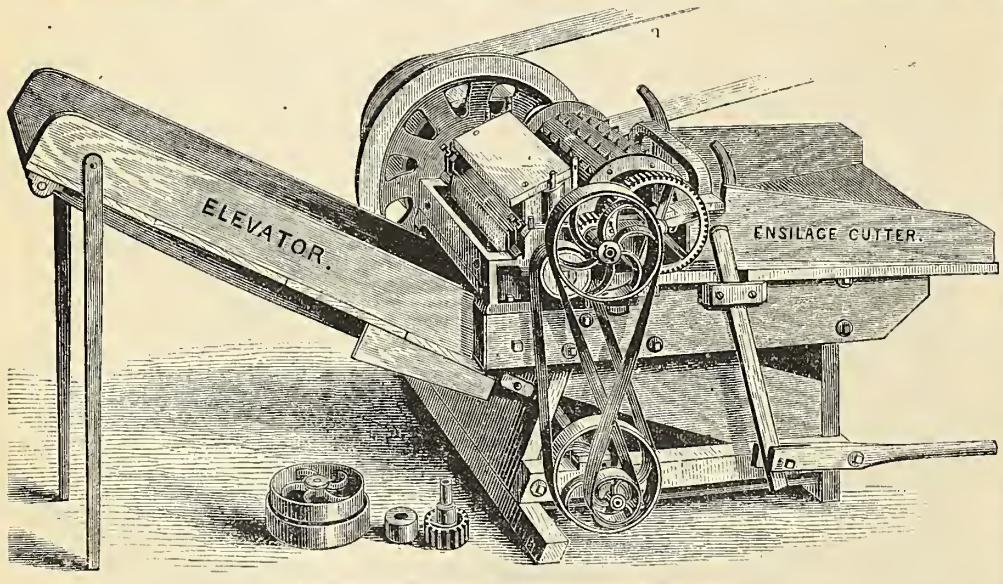
THE JOHNSON HAND-WEEDER AND CULTIVATOR.

A good loam where water never stands is desirable. Heavy clay will not do well without a good deal of preparation. If not naturally dry, underdraining is desirable, but even an open ditch around the plot, and one or two through it if needed, may answer for the present. Plow and harrow fine, working in a liberal supply of the best well rotted manure that can be obtained—half a wagon load on every square rod will be all the better, but much less can be got along with. The directions for planting, cultivation, etc., are given in our "Hints for Work," from time to time, beginning back to the February number. For the best varieties of vegetables, see article on page 84 of March *American Agriculturist*.

## Preservation of Green Fodder.

There have been so-called revolutions in agriculture, and it is not at all improbable there may be others in store for us. The introduction of clover and of root-growing were worthy of being called revolutions, and it may be that the new process of preserving green fodder will bring about such a change in our methods as to become a revolution. This, however, remains to be seen. It is certainly sufficiently promising to attract the attention of every farmer in the country. The process has been explained and described already in the *American Agriculturist*. (See June, 1875, and Sept., 1877.) To those who may not have read this account, we will say that the process consists in packing away the cut fodder, alternated with straw, in large tanks or "silos" of mason work, where it is covered with soil to exclude the air and kept down by means of heavy weights. There have been great improvements in the method, and more may be looked for so soon as American farmers take hold of it. Mr. Morris, a large farmer of Maryland, has the past year put away in silos several hundred tons of corn-fodder cut into chaff, and is now feeding it to his stock with perfect success. We have already noticed a book translated from the French, and recently published by Mr. J. B. Brown, in which the process is fully described, and we here refer to the methods of growing and cutting the fodder for use. It is unnecessary to describe the manner of growing corn, but there are methods by which unusually heavy crops, equal to 40 tons per acre, may be produced. This is done by planting the tall, heavy growing Southern or Western corn very closely in rows 3 feet apart. Ears are not looked for—only a heavy growth of tall stalks, and this can be forced by the use of highly nitrogenous fertilizers, such as Peruvian guano, dried blood, or fish guano. When the corn is in tassel and fully grown, it is cut down and carted at once to the silos. There will be a large number of immature ears, and these add to the value of the fodder. The stalks should then be cut up into chaff, and upon the thoroughness with which this is done the success of the process of curing very much depends. A powerful machine is needed for this purpose, which is shown in the engraving. This machine is much like an ordinary fodder-cutter in construction, but is very heavy and compact, and is provided with a spiked feed roller, which carries the stalks to the knives and crushes them at the same time. The rapidly revolving knives cut the stalks into slices one-sixteenth of an inch thick, and an elevator takes the chaff and deposits it in the silo. The fine chaffing of the fodder is very important, as it enables the mass to be packed so closely as to exclude the air; upon the thoroughness with which this is done, success wholly depends.

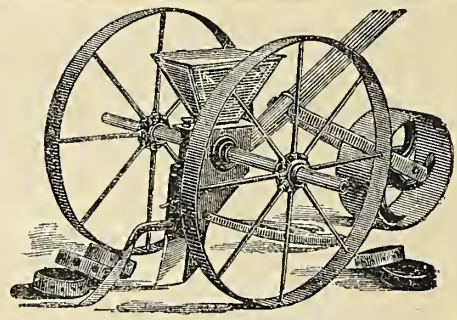
The economy of this process must be evident on very little consideration. The yield of an acre of well grown corn-fodder may be 25 to 40 tons. The ration of one cow per day is 60 to 80 pounds. With the least yield and the largest consumption here named, one acre will supply one cow for 625 days, or nearly 2 years. Half an acre of fodder will then keep a cow for one year in a stall or yard, and no other food is more productive of milk or more healthful than this. It is plain, then, that if this method can be introduced into our farm practice, a great economy will result, sufficient perhaps to entitle it to be called a revolution in our agriculture.




MACHINE FOR CUTTING FODDER FOR ENSILAGE.

## Market and Farm-Garden Implements.

It is a fact, and the sooner it is admitted and acted upon the better, that farming in thickly settled localities in the older States—except dairy farming—in order to be profitable, must be gardening rather than farming. So long as a farmer within reach of a good market for cabbages and carrots will try to compete with cheap land and railroads by raising Indian corn, farming will be a poor business for him. We hardly know where to draw the line between market-gardening and farm-gardening. If one raises such perishable articles that they must be sent to market daily, he may be regarded as a market-gardener, while the farm-gardener produces crops that require less haste in disposing of them. If asked what, after and always an abundance of manure, a farm-gardener needed in his operations, we should answer a good seed-drill, and a good hand-weeder. To sow enough carrot, onion, or similar seeds in the kitchen garden by hand, is not much of a task, but let the garden bed be extended to acres, and help will be needed. One of the first helps required by those who would sow largely the seeds of root crops, or other small seeds, is a good seed-drill. A good drill must be readily adjusted to sow seed of different sizes; it must sow regularly—not failing, through any clogging, to discharge surely; it must not waste seed; it must open the ground to the required depth, and cover the seed evenly. As a machine to meet all these requirements we have, among the various styles we have tried, found none to be superior to the "Monitor Seed Drill." We give an engraving of the machine, which, while it does not show all the details of construction, indicates some of the important points; it has two wheels, which give a more regular motion than one, and these are movable upon the axle to adjust them to any desired width. The drill, to open the ground, and the coverer, to close it, are both adjustable. The seeds are discharged from little cavities or cups in the circumference of iron rolls, several sizes of which are shown near the machine. Certainty of operation is the first requisite in a seed-sower—the work can not be verified until days—in some cases weeks after, and blanks caused by a failure to deliver are sometimes past remedy. In this respect the machine has not disappointed us. Some very useful seed-sowers are so arranged that they may be converted into efficient weeding implements, but where operations are on a large scale and varied, we prefer separate implements, as it often happens that weeding must be done just when seeds should be sown. The number of devices in the way of hand-weeders is now quite large, and while in many crops we can not do away with thumb and finger work altogether, the amount of this has been so lessened that it has ceased to be formidable, and a good hand-weeder is essential to success with many crops. We give an engraving of a new hand-weeder, the "Johnson Hand-Weeder and Cultivator." The shape of the blade allows it to be run very near the rows of young plants, and it is readily adjustable to different widths of rows. One of our associates, who tried this implement last season, writes: "The cutters work below the surface, severing the roots of the weeds, while the wings scrape the parts of the weeds that are above ground and leave them to wither and die; some improvements have been made since Mr. H. first tried the implement at my place, and it now mellows the ground in a surprising manner."



THE MONITOR SEED-DRILL.

## Double-flowered Blackberries.

The general tendency of the plants of the Rose Family to produce double flowers is manifested in the genus *Rubus*, to which the Blackberry and Raspberry both belong. The "doubling" in these flowers is mainly due to a conversion of the parts essential to the production of fruit,—the stamens and pistils—into petals; or to speak more acurately, for there is no real "conversion" in the sense of transformation, the development of those parts of the flower, which ordinarily appear as stamens and pistils, as small petals. Many of our readers can recollect a plant popular many years ago as the "Bridal Rose." This is from one to two feet high, though it may be grown much taller, has compound leaves of a lively green, and double white flowers, about two inches across at the ends of the branches. Probably few who have cultivated it under its common name, "Bridal Rose," and the less frequent one—"Brier-Rose," have ever suspected that it was not a Rose, but a double kind of Blackberry from China and other eastern countries. Like many other good old plants, this is rarely found in the catalogues, it having been crowded aside by newer, but not more deserving plants, and is seldom seen except in window culture now and then. Its botanical name, *Rubus rosæfolius*, indicates the resemblance of its foliage to that of a rose. This is a tender species, but we have hardy double-flowered blackberries; these, so far as we are aware, are forms of the common Blackberry or Bramble of Europe, *Rubus fruticosus*. There are those with white, pale-rose and red flowers, in which the regular structure of the flowers is completely lost, and they are merely masses of delicate narrow petals, and appear as seen in the engraving, more like the flowers of the double European Daisy, than like those of the Blackberry. The petals have a delicacy of texture that makes the flowers very pleasing. This shrub seems to be quite overlooked by our planters, as we do not find it offered by our leading nurserymen, and we only succeeded in procuring it a few years ago from a private garden. It has real merit as an ornamental shrub, and will succeed, if left to ramble, in the poorest soil, and it will repay good cultivation and careful training to a trellis or against some building. The stems of the European Blackberry are not, like those of our own, renewed every year, but continue for three or more years; hence in pruning, the stems that have bloomed need not be cut away entirely, but at the annual pruning only the older wood need to be removed when the stems become crowded. This tendency of the Blackberry to form double flowers is a matter of some importance to fruit growers. The cultivated variety, "Wilson's Early" often bears flowers that are double, or partly so, and as the extra petals are formed at the expense of the parts concerned in the production of fruit, the occurrence of double flowers greatly diminishes the crop. A stock of this variety sometimes, after having given satisfactory crops, will produce partly double flowers, and become nearly worthless. In such a case nothing can be done except to replace the plants from some patch in which this tendency has not manifested itself. The *Rubus* mostly cultivated for ornament is a Raspberry rather than a Blackberry, *Rubus odoratus*, the "Flowering Raspberry." This has rich crimson flowers two inches across, and could these, as the fruit is worthless, be induced to become double, it would be a great gain; so far as our observation goes, we have seen in this but little tendency towards double flowers; a single stamen or so becoming petal-like is all that we have noticed in the flowers of this species.

DOUBLE-FLOWERED BLACKBERRY.—(*Rubus fruticosus.*)

## Zinc Labels for Orchard and Garden.

Among the most permanent labels. are those made of sheet zinc, as this metal, after its surface becomes well oxidized by the action of the air, is covered with a film of colorless oxide which prevents any further change. The "Revue Horticole" recently gave the formulas of the various inks that have been proposed for writing on the zinc labels; it gives seven of them, all of which, save one, consist of a soluble salt of copper, some of them having lamp-black added, in order that the writing may be visible at once. In writing on zinc with a solution of some copper salt, decomposition at once takes place, and the black oxide of copper is deposited upon the zinc as a black film, which adheres with great firmness and is very durable. After enumerating the various inks of which copper forms a part, the editor gives preference to a simple strong solution of sulphate of copper ("Blue Vitriol"), without other addition. Our friend, Doct. Seidhoff, made the same discovery many years ago, and it was published at the time in our pages. All one need do, is to put some bits of Blue Vitriol into a bottle, add a little water, and so long as any of the vitriol remains undissolved, the solution will be saturated—that is, as strong as can be. This, if used with a quill pen, upon clean zinc, will give at once very black writing. The ink which the "Revue" prefers to any of those containing copper, is made of one part of Chloride of Platinum in 50 parts of water. This is used in the same manner as the other, and gives at once a writing of the most intense black, and indestructible. In writing with any of these metallic inks, the surface of the zinc label should be made perfectly clean. This may be done by scouring the surface to be written upon, with very fine sand, or better, powdered pummice stone, and muriatic acid so diluted with water, as to have a very sharp, sour taste. A bit of rag is to be wetted with this, and touched to the sand or powdered pummice; one side of the zinc label is to be rubbed until bright, when it is to be washed and dropped into a vessel of water, where it may remain until written upon. Before writing, remove the labels and make them thoroughly dry. This is a method of labeling, much in use abroad, and more or less in this country. Several years ago, our venerable friend, Col. Marshall P. Wilder, made known a method of using zinc labels, which is not the least in importance among his many services to horticulture. It is simply to write upon a bright zinc surface, with a common lead-pencil. The zinc oxidizes and fixes the indestructible plumbago, and this protects the written surface, so that while the rest of the label may slowly wear away by the action of the elements, the portion protected by the writing remains unchanged, and even more legible with age. This label has every superiority over those written with the inks above described, save one—it is not so distinct at first; but if carefully written, it can be read without difficulty, and is quite indelible, as shown by the test of over 20 years. Labels may be made of any desirable shape, and hung by means of a copper wire passed through a hole at one end; or they may be cut long wedge-shaped, with a very long, tapering portion, which is to be coiled around a twig, but not closely.

## State Aid to Tree Planting.

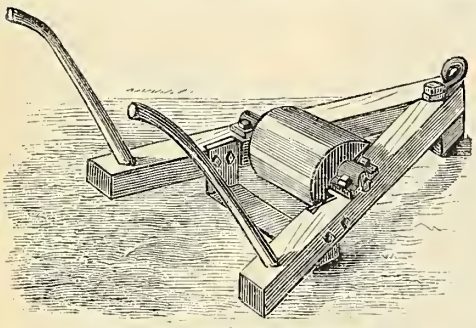
Some of the far Western States, the broad prairie portions of which are quite tree-less, a few years ago passed laws for the encouragement of tree-planting; but it is quite a recent thing for the older States to legislate in favor of forestry. In this some of the New England States have taken the lead, and have wisely set about repairing the loss of forest growth, while yet there remain some wooded tracts that have not fallen before the wicked waste that has laid bare so much land which can never be used for any other purpose than for growing trees. Knowing that Prof. C. S. Sargent, Director of the Arnold Arboretum, of Harvard University, had been active in presenting the subject to the Legislature of at least one State, we re-

quested him to give us the leading features of the laws relating to tree-planting as they now stand in the New England States. Prof. S. kindly furnishes the followiug to the *American Agriculturist:*

"It should be more geuerally understood, that already in three of the New England States, laws have been passed to encourage the planting of forest trees. In 1877, Connecticut passed a law exempting from all taxation any land, not exceediug in value $15 an acre, if planted with at least 1,200 trees to the acre of any of the following: Chestnut, Locust, Hickory, Ash, Catalpa, White Oak, Sugar-Maple, European Larch, White Pine, or Spruec; the exemption to take effect when the trees have reached an average of six feet in hight, and to continue for a period of ten years. In 1878, Massachusetts and Rhode Island both passed similar laws. That of Massachusetts requires the planting of 2,000 trees to the acre, and does not include Catalpa, Locust, or Spruce. Rhode Island Legislators take a still broader view of the importance of forest-growing. They add *Ailanthus*, and all kinds of Pines, to the Massachusetts list; allow land worth as much as $25 an acre to become exempt; advance the period when such exemptiou goes into effect by requiring the trees to average only four feet in hight instead of six, and prolong the period of such exemption to fifteen years. It does not seem possible to suggest any general legislation on this subject which could meet the varied conditions and requirements of the whole country, but the passage by other State Legislatures of special laws framed to meet the needs of each State is important, and should interest all to whom the future of American forests is a subject of concern. C. S. S."

## Prof. Beale's Sod-Cutter.

Soon after the appearance of the February number, in which appeared on page 63 an illustration of a sod-cutting implement, Prof. W. I. Beale, who occupies the chair of Botany and Horticulture at the Michigan Agricultural College, wrote us that he had tried a similar implement, and found several difficulties in the working, especially in the clogging of the sod in front of the knife, and stated that he had a cutter in which this difficulty was obviated. At our request he sent us a plan of his implement, which our artist has put into perspective, and this, with Prof. B.'s note, will enable its construction to be understood. The Professor's experimental implement was a rough one, made from materials at hand, to test the principle. The framework is of two pieces of 4 x 4-in. scantling, firmly put together at the forward end, with a clevis or hook to hitch the animals to it. Under the forward end he places a block 2½ inches thick; the use of this is not stated, but we assume it is to prevent



PROF. BEALE'S SOD-CUTTER.

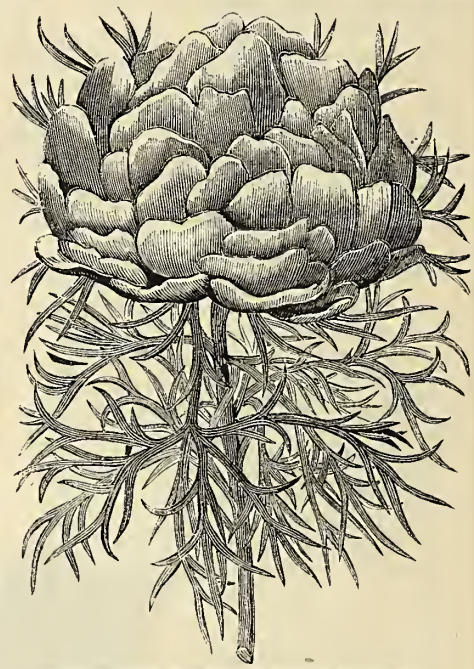
running too deep. A pair of plow handles are attached for guiding the implement. The knife is a piece of saw-plate, 6 inches wide, sharp at the forward edge, and bent up at right angles to cut 12 inches wide: this is so bolted to the frame that the cutting edge is 2½ inches below the lower edge of the roller immediately in front of it. This roller, which is an important part of the implement, is 6 inches in diameter, and 6 inches long, the bearings of which run in boxes attached to the frame. The cutting edge of the knife must be 2½ inches (or the desired thickness of sod) below the lower edge of the roller, and the knife edge of the roller must be *in a line* with the rear surface. These points being secured, the attachment of the knife and roller to the frame may be effected by any method that seems best. In using two horses, Prof. Beale had the driver stand upon the machine, but suggests, if he had much cutting to do at one time, he would load the frame to the proper working weight. Though this was a mere trial implement and roughly made, Prof. B. sums up the whole case by saying "It cuts well."

## Greens.

It is apparently an Americanism to call all green-leaves cooked as food—greens, yet it is the general term in this country for all sorts of pot-herbs. A great variety of plants, wild and cultivated, are used as greens, which though among the least nutritious of foods, seem to be generally craved, especially in spring, and it is admitted by the authorities that, on account of their large percentage of saline matters, they are useful adjuncts to other food. Among the earliest and most common of the wild greens are the Dandelion, Dock, "Cowslip," so-called, but properly Marsh Marigold, Lamb's-quarter, Nettles, etc. One objection to wild greens is the time taken to collect them, as of those named above only the "Cowslip" grows in masses, and is sure to be found when wanted, while the others must be searched for here and there. Another objection is, that wild plants being of slower growth are less succulent and tender than cultivated. One who has once tried the cultivated Dandelion will not care for the wild plant. As this must grow a year before it will yield abundantly, it should be sown this spriug. Get seeds of the "Improved;" sow as soon as the soil is ready, in rows two feet apart, when well up, thin or transplant to a foot apart in the row. The thinnings may be used this spriug, but for years thereafter the plants will yield two, if not more, cuttings early each spring of the tenderest and finest greens, without hunting all over the lots. Make provision for future years this spring. For present supplies, the earliest is Spinach sown last fall and kept in the ground one winter by covering, if need be with straw. But few grow spinach at all, and still fewer winter it over. Those who were so fortunate as to sow it, have now only to remove the covering and stir the soil between the rows. If used as soon as uncovered it will be tough, and it is better to wait until the center of the plant shows that a new growth has started. For those who have not provided spinach, and have preserved their cabbages in trenches, in a cellar or other method by which the stalk is kept sound, eau set out the stumps as soon as the ground is open and soon have an abundance of excellent greens. Open a trench in a warm place and set in the stumps about a foot apart and sufficiently deep to hold them firmly. Numerous shoots will soon appear upon the stumps, and these may be cut at any time before they get tough, or show flower buds. Spinach should be sown among the earliest crops in rich warm soil; make the rows 15 inches apart, and sow in the same manner as beets. When the leaves are au inch or two long, thin to four inches apart, using the thinnings; the other plants will soon become large, and may be used until the flower-stalk shows. It is better to sow a row every week until the middle of May. In warm weather it soon runs up to seed, and is useless. In sowing early Beets, put in an abundance of seed, to allow of a supply of "Beet-greens," by many considered preferable to all others, not excepting spinach. If the rows of Beets are a foot apart they should be thinned to six inches, if 15 inches apart, thin to four inches. For use, the thinnings are washed thoroughly, and both root and top are cooked. "Egyptian" is best.

## The Fine-leaved Pæony.

Those familiar with the ordinary Pæony only, would never suspect from the foliage of the Fine-leaved Pæony (*Pæonia tenuifolia*), that it belonged to the same genus. This—which is also called the Fennel-leaved Pæony—is a native of Siberia, and is a stranger to our gardens, for no other reason than the fact that it is not generally known. It is perfectly hardy, and once planted, will increase in beauty from year to year; though introduced over a century ago, it is yet rarely in private or commercial gardens. We have had a clump of the single-flowered form these many years, and have recently procured the double-flowered. Many stems a foot or more high, are thrown up from the root; these are crowded with dark green leaves which are cut into very slender divisions, producing in the mass a most pleasing effect. Each stem is surmounted by a large flower, which, whether in the double or single kind, is especially beautiful in bud. It forms a globe of dark crimson, surrounded by the beautifully cut foliage, and is quite as handsome in this state as when the flower is open. The single flowers, about three inches across, have, usu-



FINE-LEAVED PÆONY.—(*Pæonia tenuifolia.*)

ally, eight petals, of a rich purplish-red, against which the numerous yellow anthers show in strong contrast. In the doubled-flowered form the center is filled with small crimped petals, and present a mass of brilliant color. This is one of the old-fashioned plants, that have altogether too much merit to be allowed to disappear from cultivation. Those who, like ourselves, are old-fashioned in their garden notions, and like to look, each spring, for our favorites in the same spot, where they have greeted us in former springs, and like to see them return each year with no other change than renewed strength and vigor, will be glad to add the Fine-leaved Pæony to their collection. It comes every May with its abundance of beautiful foliage, then appear the buds so attractive, that we are almost sorry to see them open into flowers. It is a plant to be set in its place, and be let alone for years.

## Green Peas—Half a Bushel a Day.

Is there anybody who does not enjoy well cooked green peas, fresh from the garden—a good many of them—and very often, too? They are a nourishing food, and healthful also, if well cooked, and not swallowed with the skin or seed-coat unbroken. They are one of the most certain, easily grown and earliest products of the garden, and can be had in succession most of the summer. When our family is large we always plan for "half-a-bushel a day" (in the pod) from some time in May, according to the season, up to the end of July, and often well into August. The ground producing them is used for a second crop—celery, or something else. Selecting as dry and warm a spot as can be allotted to them, and applying a fair quantity of well rotted yard-manure, we sow on the same day at least two varieties, in rows, as soon as the snow is gone and the ground can be worked without packing. A good assortment to start with is: a few "Improved Daniel O'Rourke's" for the earliest (they are bettered by a *little* sugar added in cooking); plenty of Alphas for the chief early crop, with more of them

sown 5 or 6 days later, or with "Laxton's Fill Basket," or "Little Gem," or "Advancer," sown at first, to come in after the Alpha; and Champion of England sown plentifully at first, and more sown every week or oftener, to keep up a constant succession. The Champion may be varied with the "British Queen," and "Vietches' Perfection," if desired. The "Tall Sugar" can be sown by those wishing peas to be eaten "pods and all."—Alphas and Champions, sown at first, and in succession, answer very well without other varieties. Sow at the earliest possible day, to have them ready to follow Asparagus, if you have it. If by starting too soon, the first leaves get nipped by frosts, they will send up more leaves and try it again. If killed outright, put in more seed. Get a good pile of brush all ready now. It can be re-used for the later crops. If brush is not available, firm stakes can be driven along each side of the rows, and two or more wires or even strong twine (tarred if possible) be stretched to hold up the vines—say 2 ft. high for the Alphas, and 3 ft. or more for the Champions.

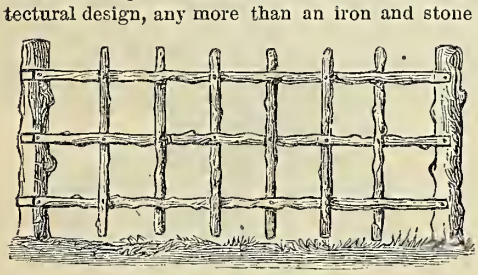
## Salsify—Do You Grow It?

Salsify is often called "Oyster-plant." We wish it wasn't, for many who live far in-land do not like oysters, and the name prejudices these against one of the greatest delicacies of the garden. It is indeed a choice vegetable, but one within the reach of every one, as it requires no more care in cultivation than a parsnip. Its requirements are precisely those of the parsnip—a deep, rich soil and early sowing of *fresh* seed, the seed being quite uncertain if not of the growth of the previous season. Make the rows 15 inches apart and sow as soon as the soil is dry enough to work; the seed being long and narrow is not sown readily in a machine, and it is safer to sow by hand. The root is rarely over an inch through; to get the largest possible, thin to three or four inches and keep free of weeds.

Scorzonera, or "Black Salsify," is a related plant, grown in the same manner and for the same uses; the root has a darker exterior. By some the flavor of this is preferred—try both. Both are hardy, and if desired, a part of the crop may be left in the ground until spring, the winter's supply being stored like other roots. *Uses:* The roots are to be scraped and thrown into water at once, else they turn dark. They are cut into small pieces, stewed, and served with a sauce of butter thickened with flour; they are boiled whole until soft, then dipped into batter and fried, or are mashed after boiling, made into cakes which are dipped in batter and fried. They are also frequently used to make a soup, directions for which we will endeavor to give at the proper season in the "Household." It is surprising that so excellent a vegetable should be so little known, and are quite sure that those who try it for the first time will thank us for bringing it to notice, and will not be without it thereafter.

## A Simple Rustic Fence.

Rustic fences are only appropriate when they are in keeping with the surroundings. A rustic fence does not comport with a house of elaborate architectural design, any more than an iron and stone



A SIMPLE RUSTIC FENCE.

fence would be in place in front of a log cabin. The fitness of things being observed, a rustic fence is often the best possible, and we have from time to time given illustrations of various styles. A correspondent who has been in the lead-mining regions of Missouri, sends us a sketch of a fence which he saw there, and which seemed to him especially appropriate. We reproduce his sketch in the engraving; as he drew it the fence posts were halved, and the rails let into the flat side, but thinking the rustic effect would be increased, they are represented here as round. Three poles with the bark on are let into mortices in the post and nailed firmly, and the palings, about the size of hoop-poles, are interwoven with the rails, to alternate, as shown in the engraving, no nailing being necessary.

## The Star-Anemone.

Few genera of plants present a wider range in habit and in color than *Anemone*. Nothing can be more modest and graceful than our early "Wind-flower," *Anemone nemorosa*; it is among the first comers in Spring, and along the edges of woods and in sheltered places, hangs its pure white or purple-tinged flower, as if in doubt whether spring has really come. In marked contrast with this is the Scarlet Wind-flower (*Anemone fulgens*) of the gardens, one of the most flaunting and self-asserting of all early plants. In stature, we have these early species of a few inches high, and in autumn the tall Japanese species, reaching under culture the hight of three feet. In colors, there are the purest white, the most intense scarlet, the brightest yellow, the deepest sky-blue, and various intermediate shades of pinks and purples. Many of the culti-

STAR ANEMONE—(*Anemone stellata.*)

vated species remain single, while others, like the florist's Anemones, (*A. coronaria*), become remarkably double. It seems strange, that plants possessing so much beauty, and offering such a great variety, whether for the border or the rock work, should be so little known and so little cultivated. The majority of the species are perfectly hardy, and many of them bloom in early spring, at a time when brilliant flowers are quite scarce. In most of the species the foliage is handsomely divided, and adds not a little to the beauty of the plants. The engraving represents the Star-Anemone, *Anemone stellata;* this is not one of the earliest, as in the open ground it does not flower until May, but is one of the neatest. It forms a tuft of handsomely cut foliage, above which appear, on stems 6 or 8 inches high, the numerous flowers an inch or more across, and of various bright tints of rose, pink, and purple, each flower opening for several days in succession.

## One Grape Vine.... Everybody.

Every family occupying a dwelling, in Country or Village, and nearly every City resident, can have and *should* have at least one Grape Vine growing, not only to "sit under," but to eat the fruit of. Wherever there is, within reach of some sunshine, a bit of ground a foot or two wide and three or more feet long, there a vine may be planted, and trained for a long distance, on a fence, up the dwelling, on a trellis, or up a post. Its abundant green foliage is always grateful to the eye, especially among city walls, and its clusters of cooling, pleasant fruit need no advocate. The grape vine is one of the most uncomplaining, unfastidious and care-rewarding of plants. Keep standing water away from its feet, give it something to eat to make stems, leaves and fruit of, with some sunlight for part of the day, and it will go to work and keep at it, as long as you live. No food suits it better than a lot of bones, coarsely or finely broken, or whole ones if there be enough of them, mixed in with the soil. It will fasten a net-work of roots or rootlets upon every bit of bone and extract nutriment as long as there is a particle of it left. All the training it will need you can give in a few minutes before breakfast or after tea, once or twice a month. It will *pay* in pleasure, in foliage, in fruit.

Order the vine soon; it can come or go anywhere, by mail; choose the place; as soon as the frost is well out of the ground, dig it up a foot or more deep; mix in the soil a peck or more of crushed bones for each vine; those from the butcher, broken up with a hammer or ax-head, will answer. When the vine arrives, expose its roots as little as possible to the air; make a hole, set it as deep as it grew before; spread its roots out well each way; cover them with earth, and moisten if needed. That's all, until you need to train its shooting stems. (Our columns have told and will tell how *that* is done.)—All the above is a very simple matter. Reader, if you have not done so, take our advice and plant, at least, ONE grape vine *this* spring—better two, three, a dozen of them, if you have ground; plant at least one, whether you live on Fifth Avenue, or in the "wilds of Oregon." You will thank us for the exhortation not very long hence.—The Concord variety, better than almost any other, will grow almost everywhere. The Delaware, Creveling, and Eumelan, are excellent among other good and reliable kinds.

# THE HOUSEHOLD.

☞ *For other Household Items see "Basket" pages.*

## Decorative Art.

BY M. G. E.

Decorative Art has been defined as the beautifying of useful things. But to the enthusiastic decorator, everything of pleasing effect has its use, if it be only to delight the eye. A piece of bright color, laid by childish hands against a bare and sombre wall, if it is in harmony with its surroundings, and relieves the monotony of a dull and cheerless surface, becomes at once a thing of use. Nothing that renders home attractive, or upon which the eye may fall with pleasure, is so small and mean as to be despised. While we counsel against the purchase of poor pictures, misshapen statuettes, and the thousand and one cheap ornaments (?), we would suggest the use of the saw, the chisel, the paint-brush and the needle. A panel painted by inexperienced fingers, however weakly, is preferable to the colored lithograph or poor chromo, and a carving but roughly done by hand, is infinitely more desirable than the veneered and highly glazed surface of the cheap wood-work. The home-made article will at least have the value of originality, and will show care and study, if not good taste. None need despair of some success, and while all may not be able to produce a work valuable for its artistic merits alone, yet each may so adorn and beautify some article of use that it may become as valuable for its ornamental qualities as for its usefulness. Above all, let it be noted that beauty does not depend upon costliness of material, but rather upon a harmonious combination of effects, and the adaptiveness of each article for the place assigned to it. Save every bright colored scrap that by hare possibility even may be of use; preserve bits of broken ornaments, old legs of chairs, if they are firm and solid, broken mouldings, and the time may come when you will need just such a piece as you now despise, and you will go gladly to your store-house to find it. First in importance in Decorative Art may be placed

### Wood Carving,

and it is hoped that the simple rules and instructions given in these letters may prove of use to beginners, who will find that, as progress is made, observation and experience will be the best teachers.

We give here sketches of the two articles usually chosen by the inexperienced as most easy of construction, and requiring but little ornamentation, viz., the Wall-Pocket (fig. 1) and the Bracket (fig. 2).

The WALL-POCKET (fig. 1) is much the simpler and is very easily put together. Half-inch boards will

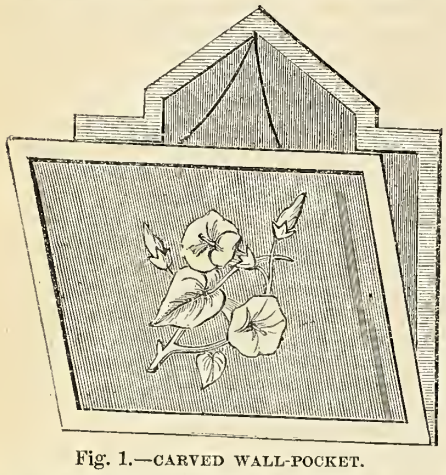


Fig. 1.—CARVED WALL-POCKET.

be required for these—a little heavier for the shelf of the bracket and its support—the wood chosen to be at the option or convenience of the worker. Black-walnut is always desirable, as being most easily worked and the most satisfactory when finished. Cherry is handsome—of a rich, deep red when oiled, but tough and hard to work, and apt to crumble under the tool. Oak should never be attempted by the inexperienced. For economy, pine or any other cheap wood may be used, and stained after carving, but this is not desirable when it can be avoided. Ebonized wood is, however, very effective when an incised pattern only is desired, the pattern to be marked off with gilt or touches of paint, and the effect will be greatly enhanced by a spray of flowers neatly painted upon the black back-ground. Full instructions in staining, ebonizing, and gilding, will be given later; with directions for making some simpler articles of furniture.

A bench to work upon will be found useful, and is easily made; but any old table or shelf of a suitable hight may be used. Upon this the material to be carved must be laid, in the most suitable position to get at the part to be worked, and kept

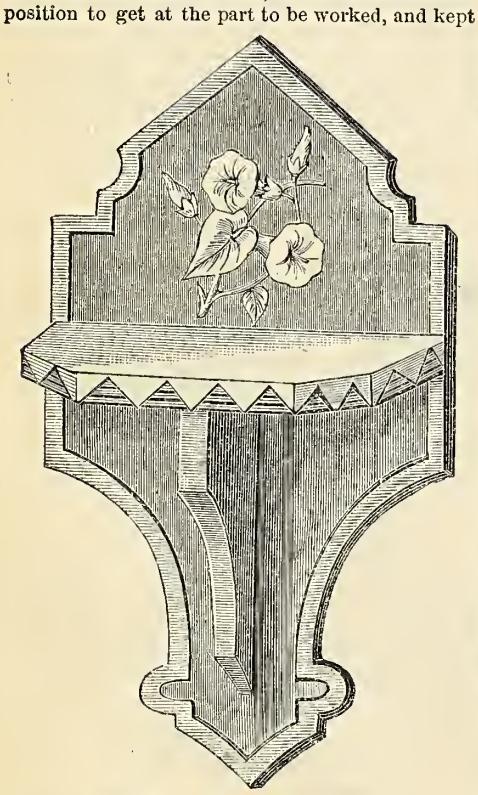


Fig. 2.—A CARVED BRACKET.

firmly in place by wooden blocks nailed tightly to the table, on each side of the piece, leaving the worker's hands free. After having drawn the pattern—those who can not draw may use tracing-paper—with the point of the carving-knife held straight down, you cut all around the edge of the pattern; then sloping the knife a little you cut around once again, thus removing a narrow slice of wood, which will leave the pattern quite distinct and clear, care being taken that the edges of the leaves are sharp, and that the sloping cut is taken from the back-ground and not from the pattern. All this may be done with a V chisel or dividing tool, but it is a dangerous instrument in the hands of the novice, and one slip may ruin all. The veining of the leaves is done with a little instrument called a veining tool, which must be handled carefully, as an unlucky slip will make a cut that can not be repaired. A line should be drawn all around the wall-pocket or bracket about ¼ inch from the edge, and cut away with the knife as above described, thus leaving a border or frame for the carved picture already made. Then with a stamping or fretting tool you roughen the back-ground, leaving the pattern smooth, and stamping carefully between the leaves and stems. This is a very simple process, and is done by holding the stamp in the left hand and striking it a quick blow with a mallet, the impression of the pattern on the underside of the stamping tool being left in the wood.

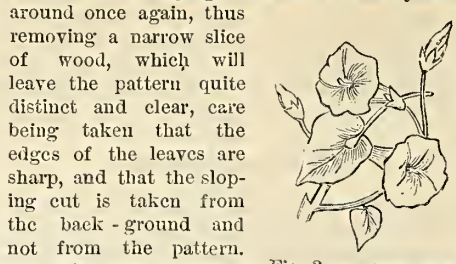


Fig. 3.—DESIGN FOR CARVING.

Fig. 4.—EDGE OF BRACKET.

The necessary tools required for this work are gouges of four different sizes, and as it will be

Fig. 5.—KNIFE.

found that the round bladed or U shaped gouge will be equally as necessary as the flat. It will be best to get four of each, and chisels, both straight and bent, with edges varying from the smallest procurable to an inch in width. A knife of the shape in the sketch (fig. 5) will be found an absolute necessity, and if not to be purchased elsewhere, will be sent by mail from the Cincinnati School of Design. An oil-stone is most suitable for repairing edges dulled by work, but a small fine grindstone should be kept at hand for the breaks that will occur; it must be used very carefully.

## "Custard Fish" or "Fish Custard."

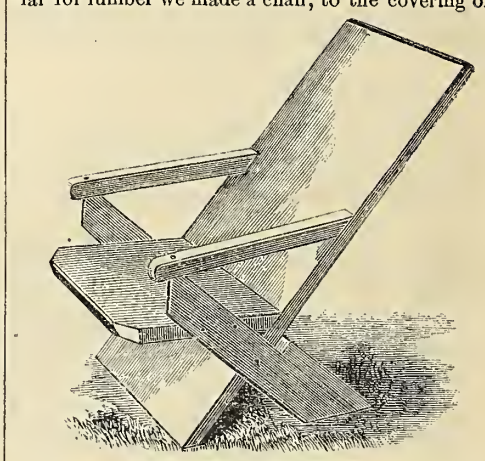
Names often go a great ways in deciding likes and dislikes. A Frenchman invited a friend to partake with him a "fricassee of boned robbins' legs." The friend pronounced it exquisite, and determined to introduce so delightful a dish at home. Imagine his disgust, his upheaval of—feeling, on happening to gather from a remark of a servant that he had just eaten a fricassee of *frogs'* legs. Recently, when breakfasting at a "boarding school," the young ladies were helped to a dish called "custard fish" or "fish custard," and they seemed to like it. Though a nice steak was offered us as a visitor, our curiosity prompted a request for some of the "custard fish." The first taste showed that it was our favorite preparation of salt codfish. There is in many families a decided repugnance to the use of codfish; it is considered plebeian, as only fit for those too poor to have anything better. Yet it is one of the most wholesome, nourishing foods, is economical, and if rightly prepared, is very palatable. It supplies excellent nutriment both for the brain and muscles. An eminent literary friend of ours used to say that, as his wife prepared it he wanted it "eight mornings in a week."—From the hurried manner of curing and drying codfish during large catches, it often happens that they are not uniformly salted and cured throughout. The smallest portion neglected may injure the taste of the whole fish and of others packed with it. This has had much to do with creating a dislike for this food. In purchasing codfish, it is well to examine them carefully, and select only those of uniform color throughout, and having no tainted odor at any point. Those of medium size are preferable—the smaller ones being too skinny, and the larger ones too coarse grained. There is now to be generally obtained what is called "bone-less codfish," at a slightly higher price, yet cheap as compared with meat or most other fish. From those well cured, the vertebra and chief bones, the skin and fins, are removed, and only the clear white portions are put up in boxes—a nice article ready for immediate use.—A great point in preparing codfish is to have it well soaked to remove all excess of salt, clear through. Two or three waters should be used. It is best to pick it finely, pour off one water, and let it stand in plenty of fresh water over night, or several hours. If too fresh, which is seldom the case, salt is easily added. This thorough soaking after it is picked fine, makes a marked difference in its flavor.

FOR "CUSTARD FISH," boil the soaked fish in water until tender; then pour off the water and pick it very fine; have ready a quart of hot milk for three-quarters of a pound of fish, and put into it the fish, and a tablespoonful of butter; stir until it boils; then stir in well a heaping tablespoonful of flour, and cook it five minutes. Let it cool a little, and then stir into it two well beaten eggs without further cooking.

FOR NICE FISH BALLS, soak the fish in warm but not boiling water for an hour, and repeat this twice; boiling water toughens it. Pour off the last water so as to leave it nearly dry, and chop it fine in a chopping bowl. Mash the boiled potatoes separately, and mix about one part of fish with two parts of potato, putting in about a tablespoonful of butter to a quart of the mixture, and adding salt if needed. Make into balls or cakes. This can be done the night before. Fry in lard or drippings, using only enough to keep them from sticking to the pan. Some prefer them fried swimming in lard, but they are less digestible. If the balls are first dipped in beaten egg, they will take up little of the cooking fat, and are very good. When well made thus, they are palatable, easily digested, and nutritious as well as economical.

## An Easily made Country Chair.

It is curious to notice how different persons will hit upon the same device. Many years ago, a young surgical friend of ours had an operation to perform, which required a chair that would allow him to put his patient in a more or less reclining position. He did not wish to give up his patient, and could not afford to pay $50, more or less, for a regular operating chair. He applied to us in his dilemma, and at the expense of less than a dollar for lumber we made a chair, to the covering of



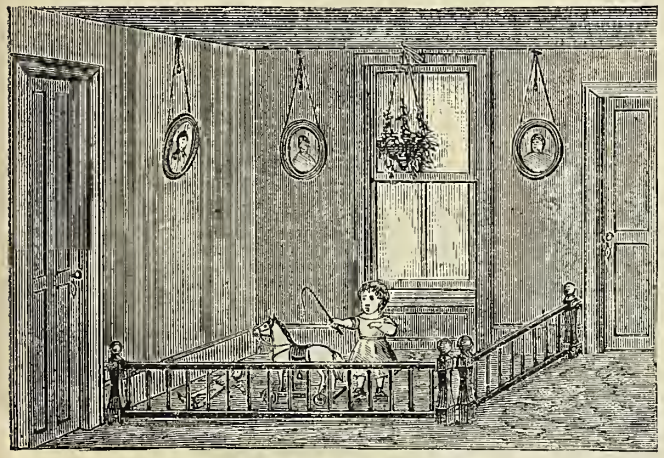
AN EASILY MADE CHAIR.

which he devoted his traveling shawl, and the thing was complete. There now comes from "G. W. A.," Lennox, Mass., a drawing of a chair, which embodies our first, and only attempt, at chair building; this is fixed—ours had the parts movable, was upon a wheeled platform, and so arranged, that it could be inclined in any needed position, but essentially the same chair. Our friend commends his chair

for use upon the lawn or in the barn. We give it as a useful and easily made chair—and very comfortable to use, but hardly to be advised for the lawn or barn. It is rarely that a chair is needed for the lawn proper, though one may be useful under the shade of a tree, and in that case, this is hardly "rustic" enough to be in keeping with the surroundings.—As to the desirability of a barn chair—we much doubt. It is quite too suggestive. We once knew a celebrated chemist, who never kept but one chair in his laboratory, and that was a stool. His plea was that a chemist never needed to sit down, except to make notes, and that no one else had any business in a laboratory. Something in the same line of reasoning, applies to chairs in barns, we don't think that those belonging there need to sit, and others have no reason for being there. Still, a chair of this kind will be found very useful. It makes an excellent chair for the piazza, vastly more comfortable than more costly ones made for the purpose. If there is a roomy kitchen, it will come in play there, or wherever about the place a chair is needed—but *not* in the barn. At the end of an attractive wood-walk, or at some point where a fine view is to be obtained, it is common to put a rustic seat. Rustic chairs are pleasing to look at, and are useful for almost every other purpose than as *seats*. Chairs of this kind, costing but little, and exceedingly comfortable, may be placed in such localities, and add much to the enjoyment of a landscape. The engraving shows the construction of the chair so plainly that no description is needed.

## Baby's Play-House—Fencing in the Baby.

Mr. H. W. T., of Worcester Co., Mass., sends drawings of a Baby's Play-House that he has constructed, and writes very enthusiastically over its utility. The engraving will give an idea of the affair. A corner of the room is penned off by means of a light portable fence, to form an inclosure where the child can not get into mischief, and can amuse itself at will. The fence is made of two sections, their length being such as to allow them to be hooked to the door casings, while the two ends that form the corner are put together with loose butts. Mr. T. gives the following measurements: The top rail, 2 by 2½ in.; bottom rail, 2 by 2½ in.; corner posts, 2½ in. square before turning; balusters, (bought ready turned for 2 cts. each), 1 in. in diameter; hight of posts, 2 ft. 3 in.; hight of top rail from floor, 2 ft. The balusters are set into



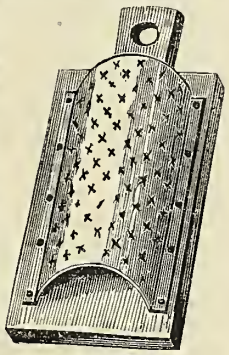
VIEW OF BABY'S PLAY-HOUSE.

the rails at 4 inches from the centers. By unhooking the ends the two parts may be folded together and stored away; when it is necessary to sweep it may be readily moved as needed by unhooking one end. Mr. T. writes: "Should it prove to be of as much value to any of your readers as it has been to me, it will repay a ten years' subscription to your valuable paper. Baby is ready for the play-house as soon as he can creep, and for a year and a half afterwards, or until able to climb over the fence, the child will occupy the house very contentedly many hours in the day, and the mother can feel certain that it will not get burned or fall down stairs, or otherwise receive injury while she goes to another room or elsewhere. After he gets used to the situation he enjoys it. He can have his playthings here, and they will not get scattered. He can look out of the window, peep through the slats, or climb up and learn to walk by their aid."

## Household Notes and Queries.

It may be well to say here to our new house-keeping readers that this column is theirs, where they can give "Notes" on such household matters as they would like to convey to other house-keepers, and where they can put "Queries" upon those matters in their household experience that they think others may answer helpfully.

A Grater for Potatoes, Etc.—"E. A. J." shows how a grater to prepare the potatoes for yeast may be made very easily. Place an oyster or fruit can upon the stove or near a fire, until the solder is melted; this will allow the top and bottom to be removed, and the seam to be opened. Open the large piece of tin, and with a nail punch numerous holes from the inside. A nail, which will make a ragged hole, is better than a regular punch; when punching lay the tin upon a block of rather hard wood; turn the edges, to give a place for tacks and fasten to a board as shown in the engraving. A hole may be made in the board to hang it by. We have used such a grater for horse-radish and other purposes, and it works admirably.



GRATER.

"Excelsior Potato Yeast," comes all the way from "towards sundown," as "E. A. J.," in Lane Co., Oregon, sends the recipe. "Pare three potatoes; grate them into a convenient vessel; pour on boiling water, stirring briskly until the mixture is of the thickness of starch. [Of course, starch made ready for use is intended. Ed.] Add one handful each of salt and sugar, and when cooled to 'milk-warm,' add one teacupful of brewer's, or other good yeast. Set in a warm place to raise. A small quantity of hops boiled in water and the liquor strained into the yeast adds to its quality."

A Nice Bread Pudding, and an economical one.—An excellent housekeeper, as we know, furnishes the following for the *American Agriculturist:* Any pieces of bread or toast, or both, may be used. Into a pudding dishful of these pour milk enough to fill the spaces, and let soak over night. Then for each pint of milk used, stir in one beaten egg, with a little ground cloves and nutmeg, and ½ teaspoonful of ground cinnamon for each 3 pints of milk. Bake slowly 1½ or 2 hours. This will give a stiff brown pudding resembling plum pudding. Currants or raisins may be added before baking, if desired, though it is very good without them, and many prefer it without. It is to be eaten cold, with cream and sugar, or flavored cream. If preferred, a hot sauce may be prepared with hot water, butter and sugar, slightly thickened with a little corn starch, and flavored with lemon or other extract.

Rye Bread.—"Mrs. B. A. R.," Matawan, N. J., disapproves of a recipe given some months ago, as that requires the hands to be put into the dough, which she thinks undesirable, as the mass is so sticky. She says: "I set a sponge over night, using milk warm from the cow, with rye-flour and yeast, the same as with wheat. In the morning when it is light, I stir in salt, flour, and more milk, using a stout iron spoon; put it in the tins and set in a warm place until nicely light, when it is baked." She uses no wheat flour, and says that the hired men prefer rye bread thus made to wheaten bread.

Why Do We Use Hops?—The remark about hops in another receipe shows that the writer, in common with many others, supposes that hops add to "the quality" of yeast, *i. e.*, improves its leavening property. This is a mistake. The only use of hops is to prevent the fermentation from going too far, and continuing until the mixture becomes sour. Other vegetable bitters are found to have the same effect when making yeast and beer. Indeed the use of hops in beer in England is comparatively recent—Ale-hoof and several other bitter herbs having been employed in brewing from early times.

# BOYS & GIRLS' COLUMNS.

## The Doctor's Talks.

In answering some questions about the Center of Gravity, last month, I said that I would try to explain more in full what was meant by Gravity—but while the illustrations given last month are fresh in your minds, I wish to give a few more, showing how we are constantly observing some fact about the Center of Gravity. You will recollect that the center of gravity is that point in a body on every side of which the parts exactly balance one another. In a square board, it will be exactly in the center, and the method of finding this point in an irregular body was shown last month. A line drawn from the center of gravity directly to the earth, or to whatever a body rests upon, is called the *Line of Direction*, and that portion of a body upon which it rests, is its *base*. So long as the line of direction falls inside of the base, the body will stand firm. This may be illustated by a loaded wagon. The base of the wagon is that formed by the points where the wheels touch the ground. In fig. 1, *c* being the center of gravity, a line drawn from that strikes the ground midway between the wheels and the wagon stands firm. But suppose the same wagon be placed upon the side of a hill, or upon a much inclined road, as in fig. 2, the line drawn downwards from the center of gravity will strike ground outside of the wheels—that is, outside of the base, and the load must fall over. Without thinking of this rule—that the center of gravity must always fall within the base, we are constantly following it. In loading a wagon, the articles are placed in accordance with the law; in getting into a small boat, we don't stop to ask "is the line of direction within the base?" but we at once place ourselves in such a position that it shall be so. Indeed, we observe this law very early in life; in beginning to walk, this is one of the first lessons we learn—to so place our feet that the base will be broad enough to have the line of direction fall within it. If when older we stand with our feet close together, the base is very small and we may readily fall over: hence we turn out the toes in standing or walking, and place the feet far apart to make a broad base. If you stand with your heels close against the wall of a room, and try to pick up something from the floor in front of you, by stooping, you will find it impossible. In stooping, the *line of direction* of the body will soon fall outside of the *base*—your feet—and over you go. Were it not for the wall behind you, you could so stoop and arrange the body that its center of gravity would be directly above the base, and there would be no danger of falling. In carrying a load on one shoulder we lean in the opposite direction, without thinking why, but we really do it in order that the center of gravity shall fall within the base formed by our feet. So in carrying a load upon the shoulder, a bag of grain, for example, we place it, as in fig. 6, so that it will be equally divided, with as much in front as in the rear, when the center of gravity will be over the base, or the feet. If, instead of this, one should place the bag as in fig. 7, the center of gravity would be outside of the base, as shown by the dotted line of direction, and the carrier would have to stoop a great deal

Fig. 1. WAGON ON LEVEL AND INCLINED ROAD. Fig. 2.

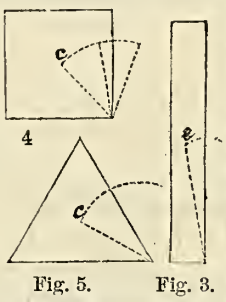


Fig. 5. Fig. 3. LINE OF DIRECTION.

Fig. 6. Fig. 7. CARRYING A LOAD.

to make it possible to carry it. We are all the time, without even thinking why, observing this law; we know that the broader the base and the lower the center of gravity, the firmer a thing will stand. Figure 3 has a narrow base, with the center of gravity, *c*, high; a little movement will bring the line of direction outside of the base and over it must go. In the cube, fig. 4, the centre of gravity is lower and the base broader, while in the pyramid, fig. 5, the base is still broader and the center of gravity lower yet, consequently a body of this shape is the most difficult of all to upset. The curved line in all of these three figures shows to which point the center of gravity in each must be moved in order that the line of direction shall fall outside of the base. A step-ladder like that in figure 8, while it stands well enough by itself, would be very unsafe with a man upon it, as it would raise the center of gravity and fall over easily. To make it safe, we have only to give it a broader base, as in fig. 9, in fact make a pyramid of it. These instances will show that we are constantly observing this important law—that the *line of direction*, a line drawn directly from the center of gravity, must always *fall within the base*, or that portion on which the body rests. The illustrations given here and several of those in last month's article, are from that excellent work by Mr. John J. Thomas, on Farm Implements and Machinery, which every intelligent boy and especially every boy upon a farm, might study with great benefit. This is all that we need say now about the *center* of gravity—at least until we have some talk about gravity in general. I am reminded that I did not, as intended, give you the figure of a metre, or rather a part of one. Many of you will recollect that some months ago, I had some articles

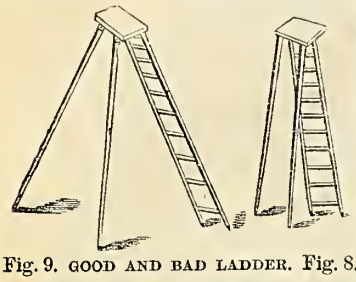


Fig. 9. GOOD AND BAD LADDER. Fig. 8.

ON WEIGHTS AND MEASURES AND THE METRICAL SYSTEM.

In one article I showed that our present measures and weights started from very small beginnings, grains of barley and of wheat, and that our measures of length and measures for liquids, and our weights had very little agreement, as every scholar who has tried to turn avoirdupois into Troy weight knows. I afterwards told something about the system of weights and measures adopted by the French, and used by several other countries, which is so plain and sensible that it must, before many years, be used by all civilized people. Even now it is so generally used in scientific books, that it is well for every one to know something about it. It is called the *Metrical System*, because its starting point is the metre. All other measures and all weights have a direct relation to

THE METRE.

It was told that the metre was fixed by taking one ten-millionth of the distance from the earth's equator to the pole. The *metre* is 39.37043 of our inches, or about three and a third inches longer than our yard. Measures less than a metre are obtained by dividing the metre, and those for more than a metre, by multiplying it. For these, prefixes from the Latin and Greek are used. For divisions, Latin, and for multiplication, Greek. Thus:

| | | | | | |
|---|---|---|---|---|---|
| For division Latin prefixes. | Mille | = 1,000 | For multiplication Greek prefixes. | Deca | = 10 |
| | Centum | = 100 | | Hecaton | = 100 |
| | Decem | = 10 | | Kilios | = 1.000 |
| | | | | Myrias | = 10,000 |

The divisions of a metre will stand thus:

| | |
|---|---|
| Millimetre | 1/1000 of a Metre. |
| Centimetre | 1/100 " " |
| Decimetre | 1/10 " " |
| METRE | 1— |
| Decametre | 10 Metres. |
| Hectrometre | 100 " |
| Kilometre | 1,000 " |
| Myriametre | 10,000 " |

Now you may like to see what a metre looks like, but as our page is not long enough or wide enough, we must take a *decimetre*, which you will recollect is the tenth of a metre—or what is the same thing, 10 *centimetres* or 100 *millimetres*. These are put in contrast with four inches, so you can see the difference. Of course, paper is not permanent, it shrinks and expands, yet you can, by care, make a metre from the decimetre printed here that will be very nearly correct.

I have also told you how from the *metre* the measure of length, the measure for capacity was made. A cubic *decimetre* is a *litre*. That is a box that measures on the inside an exact decimetre each way, will hold just a *litre*—which is the starting point for measures of capacity of all kinds. There is not in this system a dry measure, a beer measure, and a wine measure, as with us, but the litre and its multiples and divisions answers for milk as well as for wheat. The other measures are derived from the *litre*, as the other measures of length are from the metre, and the same prefixes are used. Thus we have:

| | |
|---|---|
| Millilitre | 1/1000 of a Litre. |
| Centilitre | 1/100 " |
| Decilitre | 1/10 " |
| LITRE | 1 Cubic Decimetre. |
| Decalitre | 10 Litres. |
| Hectolitre | 100 " |
| Kilolitre | 1,000 " |

As a metre is a little over one yard, so the litre is a little more than our wine-quart, or to be exact, it is 1,0565 quart. Now, having reviewed our lesson for the benefit of the new scholars, the older boys and girls will like to take a step in advance, so we will say that the metre is also the starting point for the weights of this system. From the metre we get the litre, and with the metre we get the weights. A cubic metre—that is, a vessel measuring a metre on all sides—filled with pure water, gives the *Tonneau*, or ton, of this system; but we will start with a smaller weight and the one most in use, the *Gramme*, which is the weight of a cubic centimetre of pure water. The *Gramme* is about 15½ of our grains. From the names of the divisions and multiples of the metre and the litre, you will have no difficulty of understanding the smaller and the larger weights. But we must talk of this another time. THE DOCTOR.

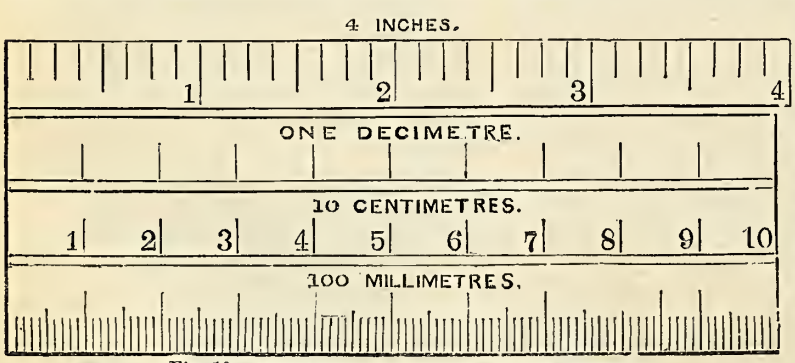



Fig. 10.—DECIMETER AS COMPARED WITH INCHES.

**Strange Place for a Bird's Nest.**—An English paper gives an account of a pair of birds—Pied Wagtails—that last year built their nest on the under side of a railroad car. This car made four short trips and returned each day, yet the birds not only built their nest, but hatched their young. The account states that if the car went off while both old birds were out hunting for food, these did not seem to mind it, but they would perch on the telegraph wires with the food in their beaks, and wait patiently until their traveling nest came back. The birds seemed to like the arrangement so well, that they came back to the same place this year, built another nest, and eggs were laid in it.

## Our Puzzle-Box.

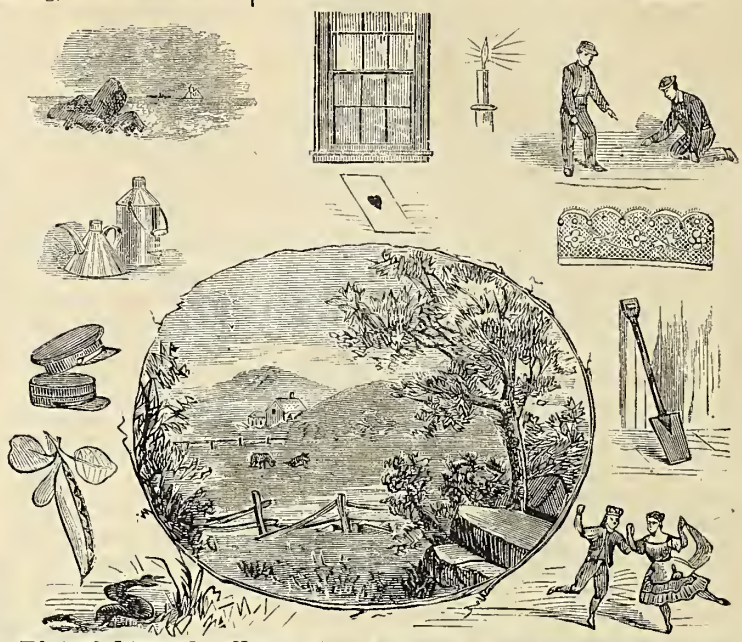
EQUIVOCAL WORDS.

(Each line gives different definitions to one word—*e. g.*, "Tranquility—repose—to shift a little—"*ease.*")

1. Explanation—regard—recital.
2. Once more—the rear—to aid.
3. To confine—a hut—an apartment.
4. Presence—sight—mode of regard—shamelessness.
5. An embrace—possession—to catch.
6. Fixed—rushing—dissipated—established.
7. To inculcate—print—emblem.
8. A vessel—to contend—to agitate. TRY AGAIN.

PUZZLE.

Take part of Nevada, part of Maine, part of Georgia, part of Wisconsin, and part of California, and make another State. J. W. WHEATLEY.



**Pictorial Puzzle.**—No. 466.—AUNT SUE sends this, as a very neat pen-drawing, and says "One word describes the central picture. From that word may be made, one at a time, the twelve words which are represented by the pictures surrounding the central one."

HISTORICAL ACROSTIC.

1. A celebrated revolutionary battle-ground.
2. One of the Presidents of the United States.
3. A British war-sloop captured by the Essex in the war of 1812.
4. One of the first Governors of Massachusetts.
5. A famous pirate.
6. A great Statesman.
7. A traitor to his country.
8. The name of the American vessel which captured the British sloop "Frolic."
9. An Artic hero.

The initials of the answers to the above questions form the name of a celebrated Indian Chief. MARION.

VERBAL DISTINCTIONS.

(Fill the blanks in each sentence with words pronounced alike but spelled differently.)

1. That good metal — much to the value of the —.
2. Was the roof of the — built in the form of an — ?
3. He — to me from the fourth story that he was growing—.
4. The child — the — paper away.
5. What can — this — ? It is horrid!
6. I shall visit — — I leave Scotland.

CHARADES.

1. My first and second may generally be found on the breakfast table: my whole in the fields.
2. My first is a kind of gum, my second is used at dinner-time: my whole is used on the farm.

NUMERICAL ENIGMAS.

1. I am composed of 25 letters:
   My 3, 22, 7, 20, 14, is a fruit.
   My 5, 15, 19, 11, 24, is a plant.
   My 7, 9, 18, 8, 1, is a blacksmith's tool.
   My 14, 12, 6, 1, 16, is a bird.
   My 18, 24, 9, 21, 10, is a planet.
   My 20, 17, 22, 2, 23, is a European city.
   My 25, 4, 12, 22, 13, is a fish.
   My whole is a proverb. ISOLA.
2. I am a word of 13 letters:
   My 2, 12, 3, is a domestic animal.
   My 11, 4, 10, is a cooking utensil.
   My 11, 6, 2, is a soft cushion.
   My 7, 4, 3, 1, 5, is a kind of drink.
   My 8, 4, 5, 2, is much used in cooking.
   My 5, 13, 9, 11, is to cut grain.
   My 3, 4, 7, 8, 12, 11, is to run with leaps or bounds.
   My whole was a famous American poet and author.
   J. W. WHEATLEY.

HIDDEN COINS.

1. The arms of that doll are too long.
2. It will be no trouble to shorten them.
3. Frances, why don't you come and see me?
4. Well, I rarely go out, now.
5. Have you heard from Arkansas lately?
6. Not a solitary line have I had for months.
7. Oh! gentlemen, do sing me a glee!
8. What! in this dim entry?
9. There goes my English friend, Rogers.
10. Do you mean that hale, ruddy giant?
11. Yes, he is my friend—at least I hope so!

METAGRAM.

In a word of one syllable, embodying six letters, find 2 articles, 2 exclamations, 25 nouns, 9 verbs, 2 adjectives, 2 pronouns and a preposition.

BLANK DECAPITATIONS.

(Behead the word which fills the first blank, and use the remainder for the second blank—*e. g.*, He did not —— in his determination to —— his will —Falter, alter.)

1. She was sure to —— when she heard the wagons ——.
2. Under the —— of his boat, he saw an ——.
3. When told that he might have a holiday, he was a very —— little ——.
4. The —— was too damp for them to —— to advantage.
5. The cabbages —— in a ——.
6. Do not —— my ——, or you will annoy her.

CROSS-WORD.

My first is in shower but not in rain,
My next is in grief but not in pain,
My third is in heaven but not in sky,
My fourth is in leap but not in fly,
My fifth is in paint but not in draw,
My sixth is in chin but not in jaw,
My seventh is in girl but not in lass,
My eighth is in window but not in glass,
My ninth is in pity but not in love,
My tenth is in eagle but not in dove,
My eleventh is in claw but not in wing,
My twelfth is in hoop but not in ring,
My thirteenth is in wasp but not in bee:
My whole is a pretty, well-known tree.

ANAGRAMS.

1. Riot airing.
2. Best coals.
3. Is his tin dug?
4. See mine.
5. Does Ed try?
6. I clip a lot.
7. O! sing verse.
8. Far?—Steward.
9. Avert attic.
10. Bears on ale.

DROP LETTER PUZZLE.

(Every other letter of each word is dropped, commencing with the first letter.)

1. —p—i—h—n—s—.
2. —i—c—n—e—t—d.
3. —a—r—l—g—o—s.
4. —m—o—t—u—e.
5. —n—b—i—t—d.
6. —e—i—l—t—r—.
7. —e—d—c—o—e.
8. —o—r—s—o—d—n—.

PI.

Hewn lal het standblemshin fo file rea geno, Het dawroc snakes ot hated, bet verba vile no.

ANSWERS TO PUZZLES IN THE FEBRUARY NUMBER.

CLASSICAL DOUBLE ACROSTIC.

Diogenes—Socrates.

D—emodocu—S
I— n —O
O— lympi —C
G— i —R
E— urop —A
N— igh —T
E— urydice —E
S— esostri —S

HIDDEN RIVERS.—1. Red. 2. Green. 3. Gila. 4. Ohio. 5. North. 6. East.

NUMERICAL ENIGMAS.—1. Snowflake. 2. Search the Scriptures.

MALANGE. — Pearl, earl, pear, peal, Lear, reap, pare, leap, pale, plea, lea, ear, rap, ale, pea.

STAR PUZZLE.—Deer, room, moor, reed, door, raps, spot, trap, pool, loof, plow, ward; (which read backwards will be) draw, wolf, fool, loop, part, tops, spar, rood, deer, room, moor, reed.

ANAGRAMS.—1. Mignonnette. 2. Affectionate. 3. Reminiscences 4. Contrabands. 5. Necromancers. 6. Ascertains. 7. Chiropodist. 8. Literature. 9. Atmosphere. 10. Chalybeate.

CROSS-WORD.—Maine.

PICTORIAL ANAGRAM PUZZLE.—The pictures represent "storm," "ait" (a little island), "violet," "Eden," and "note," the letters of which, transposed, will make the proverb—"It is never too late to mend."

Puzzles, answers, and such matters as were formerly directed to "Aunt Sue," may hereafter be sent to "The Doctor," No. 245 Broadway, New York.

## The Doctor's Correspondence.

THE HISTORY OF THE HOUSE-FLY.

During the past three or four years several young people have asked me to tell them about the common House Fly, how and where it breeds, and its history before it appears as a fly. One would suppose that there could be no difficulty in learning all that one would wish to know about this, the most familiar of insects, and that the scientific books would give the whole story. I was greatly surprised to find that our entomologists, who have studied the rare insects, and given the fullest descriptions of those that are hardly known outside of their cabinets, and which do not have, so far as we are aware, any relations to us through our crops or otherwise,

KNOW ALMOST NOTHING ABOUT THE HOUSE-FLY—

the insect of all insects that is with us daily throughout a large share of the year, which reminds us not only daily, but nightly, of its presence, and for the shutting out and trapping of which much ingenuity and large sums of money are expended every year. When the request to say something about the House Fly first came, I turned to the latest and fullest work upon insects, by one of our most learned students of the science, expecting to find here all the needed facts. What was my surprise to read: "Every one notices that house-flies are most abundant around barns in August and September, and it is in the ordure of stables that the early stages of this insect are passed. No one has traced the transformations of this fly in this country, but we copy * * the rather rude figures * * of the *Musca domestica* of Europe, which is supposed to be our species." Entomologists are strange people; they don't appear to know whether our commonest insect is different from a similar one in Europe, and are not sure of how or where it breeds!!!

Fig. 1.—EGG OF FLY.

If those who devote their lives to the study of insects know nothing about flies, I couldn't be expected to give you any help, and so let the matter rest. A few days ago I came across, in the English "Science Gossip," an article showing that two Englishmen had been studying

THE EGGS OF THE EUROPEAN HOUSE FLY,

and if, as our entomologists suppose—but do not seem to have decided the fact—our fly is the same as theirs, we can learn something of its early stages. Flies do not always deposit their eggs in manure, as one of the observers found his upon a piece of cold meat, and the other obtained his eggs by placing a piece of liver where the House Fly could deposit her eggs upon it. The shape of the egg is shown in fig. 1, which is much magnified, its real diameter being $^1/_{30}$th of an inch; the surface, highly magnified, was found to be lined as shown in a part of the engraving. The eggs hatched in 2 or 3 days, and

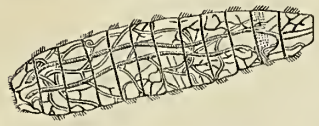


Fig. 2.—CHRYSALIS.

THE MAGGOT, OR LARVA,

was produced; this, shown in fig. 2, was $^1/_{25}$th of an inch in diameter, and its skin sufficiently transparent to allow the interior parts, its breathing organs, etc., to be seen under the microscope. The maggots were so greedy and ate away at the putrid liver in such a lively manner, that the mass was in constant motion. When the *maggots* have made their growth, the time being governed by the weather, they become quiet and form a chrysalis (fig.3), about $^1/_{40}$th of an inch through, from which the perfect fly soon appears, the time from laying of the egg to the appearance of the fly, being from 8 to 14 days. Now you have all the early history of the English House Fly

Fig. 3. MAGGOT OF FLY.

I can find, and some of you should watch the ways of our own, to see how the two agree. Those who have the *American Agriculturist* Simple Microscope will find it useful in such examinations. Mind that there are several others besides the House fly, and that one of these, the Blow-fly, is much more likely to lay its eggs, or young maggots on meat than that...Now that spring has opened we may expect questions about insects; here is one

ABOUT RAISING BUTTERFLIES,

and I will let James, who lives at Williamsburgh, L. I., tell his own story:

"DEAR DOCTOR: A lady has sent me some chrysalides, asking me to take care of them for her, and to give her 'one or two of the butterflies when they come out.' I wrote and asked her if I was to bring them up on the bottle, and she answered 'yes,—a bottle of chloroform, as soon as the butterfly appears.' Now I really don't know what to do with them,—whether to shut them up in a jar, or box,—put them into a cold room or a warm one—and in my extremity I concluded to ask advice of you. Please tell me how best to take care of chrysalides so that I may secure the perfect butterflies with the least injury to their plumage, and oblige JAMES F. W."

Those who wish to have the best and most perfect specimens of butterflies and moths, gather the cocoons or chrysalides of those which pass their pupa state above ground and hatch them in the house, and so soon as the insect is ready to fly it is made into a "specimen" before it has a chance to injure its wings and become battered by storms and otherwise defaced. I would advise James to place the chrysalides under a coarse sieve, or in a shallow box covered with mosquito netting, or other coarse fabric, and place them in a moderately warm room where they can be looked at every day. When a butterfly or moth first comes out of its case it is usually a

POOR, HELPLESS, LIMP THING,

often wet and bedraggled, and a very unpromising creature. Let it alone. In time it will unfold its wings, stretch them into shape, and dry them, when they will show their proper colors and real beauty. It often takes several hours to get ready to fly. If it is to be made into a specimen, it should be killed just when it is ready to fly, and the easiest way to do this, and one that causes the insect no pain, is to put a few drops of chloroform upon its body. This usually kills small insects at once; the larger ones, after having the chloroform, should be put under a tumbler or other glass, or shut in a tight tin box, so that the vapors of the chloroform will be confined. Some of the large moths will not be killed by chloroform; for these, entomologists use a solution of one dram of Cyanide of Potassium in an ounce of water. A large needle wetted with this and thrust into the insect, usually kills at once.

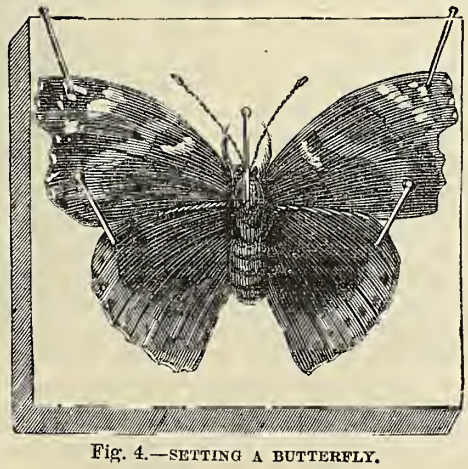


Fig. 4.—SETTING A BUTTERFLY.

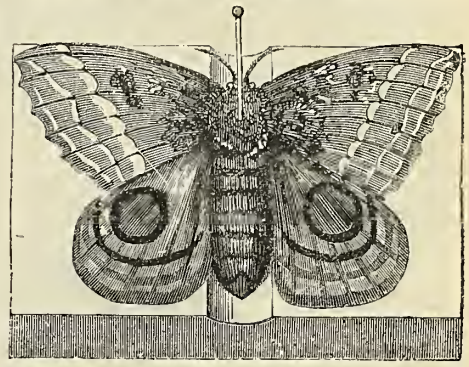


Fig. 5.—SETTING-BOARD FOR A LARGE MOTH.

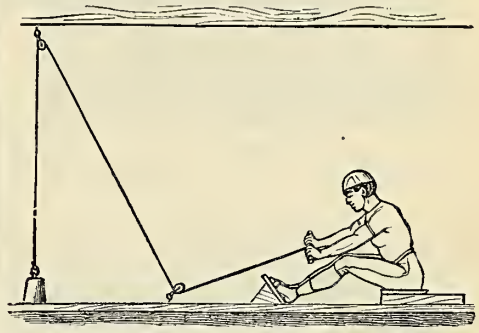
This is so deadly poisonous that I do not advise its use by youngsters—and as I do not know whether James is old enough to be trusted with so dangerous stuff, I mention it as one of the things for him to carefully let alone if he is a mere boy. Having killed the insect, if it is to

MAKE A SPECIMEN

it must be carefully dried. Some merely have a long pin thrust through the chest of the insect—that part to which the wings are attached—and its wings put in shape, as shown in fig. 4. If it is a moth with a large body, a grooved board, like that in fig. 5, or a board with two strips, tacked on to leave a space between them, is used. Where the moths have very large fat bodies, they are cut open below with a pair of fine scissors, the contents removed, and the cavity filled with cotton, made into a roll of the proper size; this cotton is covered with powdered arsenic, put into the body, and that is closed with a few stitches. But as these operations of stuffing, etc., require much skill, it is not likely that the lady who left the chrysalides with James will expect any such care from him.

## A Rowing Machine.

Sometimes we have had inquiries from boys about fitting up an in-door gymnasium where they could take ex-



EXERCISING WITH THE ROWING MACHINE.

ercise in stormy weather. The Captain of a Boat Club in Penn. sends us a sketch of a rowing machine that has been put up in his boat house, and which is much liked by the members. This strikes us as a capital thing for a boy's gymnasium, as it costs very little, can be easily made lighter or heavier, and gives just the kind of exercise that is obtained in the use of the oar. It will be seen from the engraving that it only requires two pullies, a cord, and a handle, with a weight suspended as there shown. Those who are practising to pull in a boat prefer such a sliding seat as is used in rowing shells, but those who exercise for the sake of exercise, do not need this. The weight is to be graduated according to the strength of the person; from 30 to 40 lbs. is used by the members of the boat club—but boys will need much less. The weight should be so small at first as not to be fatigning, and may be gradually increased. Pulling at weights has long been a favorite gymnasium exercise, but we have not before seen the weights arranged, as above described, to give an exercise similar to rowing.

**A Curious Question,** not new, but quite puzzling to those who have not seen it: "How can two persons be born at the same moment, and both die at the same instant, and yet one have seen, in fact lived, twenty days more than the other? It can be so. Those who have not seen the answer may enjoy finding out—while we delay the answer until next month. Our young readers need not trouble themselves to send answers.

## Pearls—What They Are and How Procured.

The valuable jewels—we can hardly call them gems—known as pearls, are simply a rather common substance, *pearl*, in a peculiar form. Therefore, before we talk about pearls, it will be well to say something about *pearl* in general. The shells of various Mollusks, commonly called "Shell-fish," whether found in salt or in fresh water, show upon the inside what is known as a "pearly lustre;" the surface shows a great variety of colors as the position of the shell is changed, and we see, in very delicate tints, all the colors of the rainbow. Sometimes the shell of the common oyster is slightly pearly, but only indistinctly so, while the shells of the *Unios* and other Mollusks, so common in fresh water streams and ponds, and commonly known as "Fresh Water Clams," or "Mussels," are often lined with the most beautiful pearl, and show brilliant colors. All shells are much alike—that is, they are limestone, and have much the same composition as common limestone and marble. The animal within the shell—the oyster, the snail, the fresh water clam, indeed all the Mollusks that have shells,

ALL BUILD THEIR OWN SHELLS.

Their shells are not something that comes to them from without, but they are built up *by the animal itself* from within. Many shells show by lines, on the outside, the rate of their yearly growth. You will at once wonder if all shells are essentially the same, why all shells are not pearly. This cannot be well described without going into matters that would hardly interest you, and I can only say in brief, that it is owing to the manner in which the material is put together. Rock candy, clear barley sugar, a lump of loaf-sugar, the grained appearance of peppermint drops, and the dead white of stick candy, are all very unlike in appearance, yet each is only pure sugar in a *different form*, in which the particles of sugar have a different effect upon light. Some of these Mollusks in forming their coverings, so deposit the carbonate of lime, to build up their shell, that this in those with the pearly lining

DECOMPOSES OR BREAKS UP THE LIGHT,

and shows the various colors of which white light is composed. You know that a crack in a lump of ice will show all the colors of the rainbow, and that a soap-bubble, when blown thin, will show the most beautiful colors; these common illustrations will allow you to understand how the minute particles of shell material, if put together in a certain way, may have a similar effect upon light. The difference then, between pearl and common shell, is, that it is so put together that the pearl breaks up white or common light into colored light. The animal in making its shell, whether pearly or not, takes great care that its interior, the case, or house in which its soft body is to live, shall be perfectly smooth and polished. We will suppose that by some accident, when the animal has its shell open and is taking in food, a grain of sand falls in, and gets between the soft body of the creature and its shell. The animal has no claws or other helps by which to get rid of this unwelcome guest to its house, and as it can not push it out, it covers over the grain of sand with its shell material, so that, its sharp corners being covered, it can get along with it as a round, smooth body, and as year after year it gives a new coat to the shell, it gives one to its troublesome visitor, and thus the grain of sand grows and becomes a pearl.

ALL PEARLS ORIGINATE

in this manner—an attempt of the Mollusk to cover up a grain of sand or other intruding substance that it can not get rid of, and as it covers it with the same material as that of which it builds its shell, it will be seen that only those Mollusks that have handsome pearly shells, will make handsome pearls. Pearls are very often found in the common oyster, but as the shell of that is nearly dead white, and very rarely pearly, so the pearls are dead white and of no beauty. It is in the Pearl-oyster, a large oyster-like Mollusk, the roundish shells of which are sometimes a foot across, that we find the most beautiful pearly lining, and consequently the most beautiful pearls, when accident causes them to be formed. This Pearl-oyster, as it is called, is not very closely related to our edible oyster; naturalists call it *Avicula margaritifera;* it is found in the East Indian seas, and in the Pacific Ocean, opposite Mexico and Central America. The shells, known as "Mother of Pearl," shown in fig. 1, are much used for making buttons and for a great variety of small ornamental work. The Pearl-shells and Pearls are obtained by

THE PEARL DIVERS.

In the countries where they abound, there are regular pearl fisheries. The "oysters" are found at a depth of from 50 to 100 feet, and the boats go out with 10 divers and men to manage the boat and haul up the divers. Each diver has a rope, at the end of which is a stone weighing about 30 pounds, it has a loop for him to put his foot in, and also a sort of basket to hold his oysters. The engraving, fig. 2, shows a pearl-fishing scene in the Persian Gulf. The men, when at the bottom, work as rapidly as possible in picking up the oysters, and placing them in the basket; the most experienced can stay below only 80 seconds, and the majority are down but 60 seconds, before they jerk the rope as a signal to be pulled up with their load. When the oysters are brought on shore, they are stacked up to die and decay, and as a consequence, a pearl-fishery is not a pleasant place. The best pearls are about the size of peas, but much larger ones are found. The largest pearl known, is two inches through.

PEARLS IN FRESH WATER.

As already stated, the shells of our *Unios* or "Fresh Water Clams," or "Mussels," as they are often called, have a beautifully pearly surface on the inside, and these sometimes produce pearls of great beauty. Fig. 3 shows the *Unio* in which pearls are most frequently found, of about half of the real size. Several years ago, the *Unios* in the New Jersey streams were remarkably productive of pearls, and there was a great excitement over them. Taking advantage of the fact that pearls are produced by gravel, or other matter within the shells of the Mollusk, various attempts have been made to produce pearls artificially. The Chinese are especially clever in

MAKING PEARLS AT WILL.

They keep the *Unios*, or fresh water clams, in tanks, where they can find them again, and dexterously slip in between the poor creature and its shell, either some little bits of pearl-shell, or small leaden shot; they sometimes put in tiny leaden images of Buddha, one of their many gods. These articles are in time covered with pearl, as shown in fig. 4, and the superstitious think it wonderful that the image of Buddha should appear upon the shell. Other attempts have been made to produce artificial pearls by boring through the shell and putting in sand, etc.

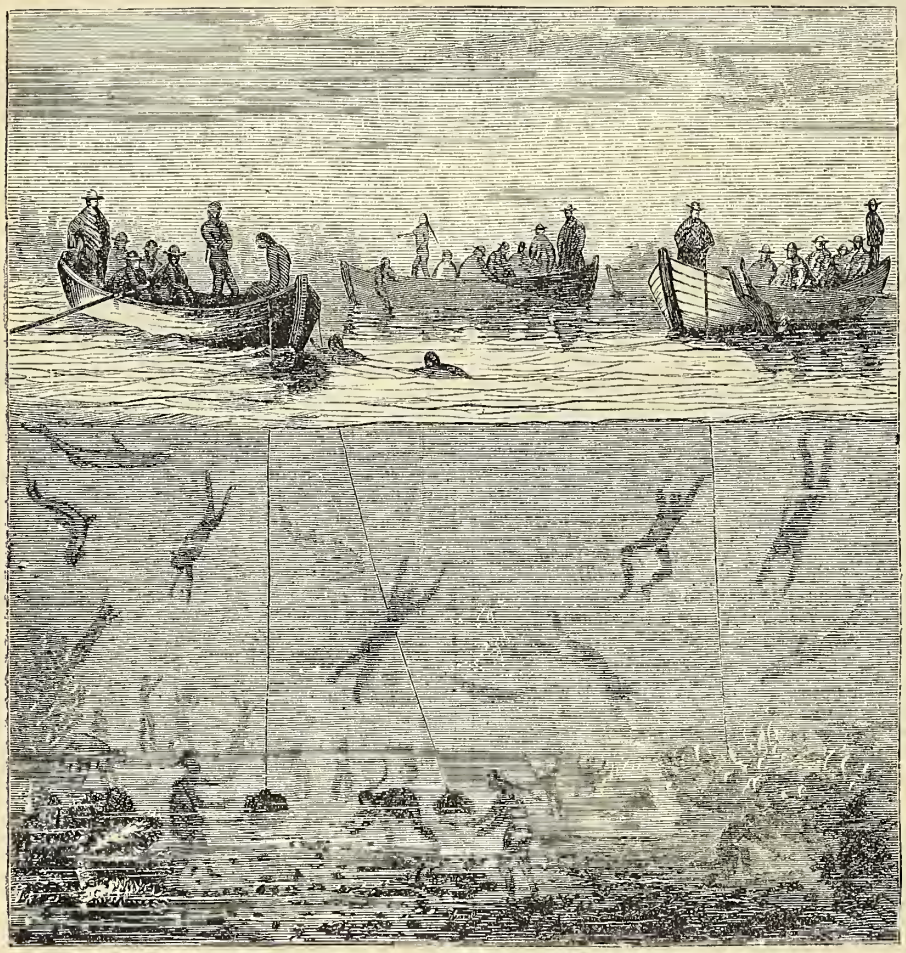


Fig. 2.—EAST INDIAN DIVERS GATHERING PEARLS.

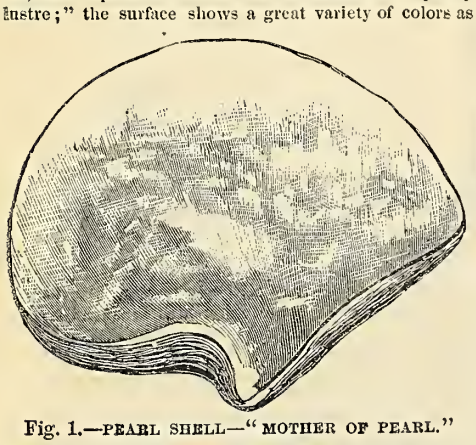


Fig. 1.—PEARL SHELL—"MOTHER OF PEARL."

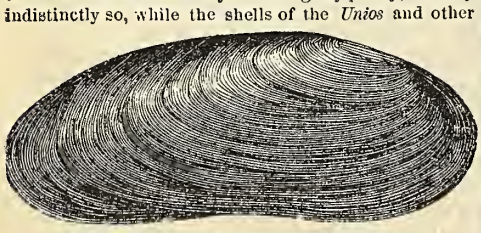


Fig. 3.—FRESH-WATER MUSSEL—*Unio.*

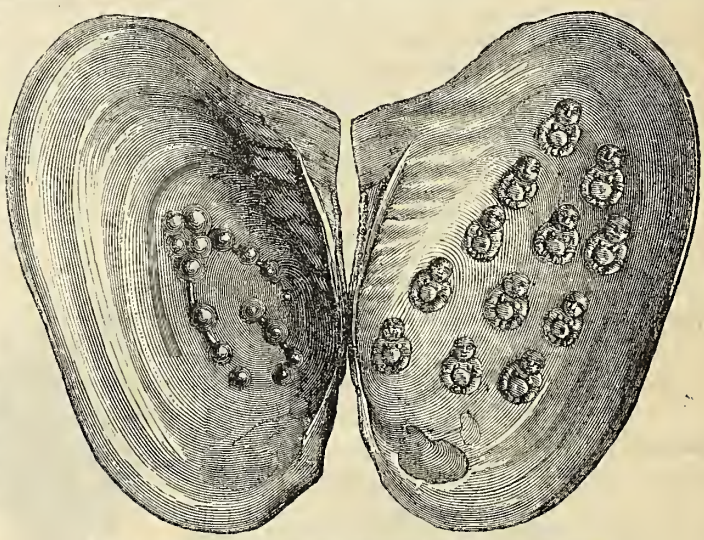


Fig. 4.—ARTIFICIAL PEARLS PRODUCED BY THE CHINESE.

# STATEMENT OF THE MUTUAL LIFE Insurance Company, OF NEW YORK.

## F. S. WINSTON, President.

### For the Year Ending Dec. 31st, 1878.

| | | |
|---|---|---|
| Net Assets, January 1st, 1878 | | $82,355,678 27 |
| RECEIPTS FOR 1878. | | |
| From Premiums | $13,092,719 83 | |
| From Interest and Rents | 4,752,407 74 | $17,845,127 57 |
| TOTAL | | $100,200,805 84 |
| DISBURSEMENTS FOR 1878. | | |
| For Death and Endowment Claims (matured and discounted) | $6,603,713 22 | |
| For Annuities | 26,697 97 | |
| For Dividends | 3,555,462 00 | |
| For Surrendered Policies and Additions | 4,214,158 94 | |
| For Contingent Guarantee Acconnt | 277,101 09 | |
| For Commissions (payment of current and extinguishment of future) | 532,496 63 | |
| For Expenses and Taxes | 817,099 57 | $16,026,729 42 |
| BALANCE JANUARY 1ST, 1879 | | $84,174,076 42 |
| ASSETS, JANUARY 1ST, 1879. | | |
| Bonds secnred by Mortgages on Real Estate | $57,368,331 99 | |
| United States and other Stocks, (cost value) | 17,333,175 18 | |
| Real Estate | 6,319,051 73 | |
| Cash in Banks and Trust Companies, at interest | 3,100,516 10 | |
| Balances dne by Agents | 53,001 42 | |
| NET ASSETS, JANUARY 1ST, 1879 | | $84,174,076 42 |
| Add | | |
| Interest Accrued | $1,485,754 00 | |
| Deferred Premiums | 835.817 15 | |
| Premiums in transit | 129,272 58 | |
| Market Value of Stocks in excess of cost | 502,694 37 | $2,953,538 10 |
| Gross Assets, Jan. 1st, 1879 | | $87,127,614 52 |
| Liabilities, Jan. 1st, 1879 | | 82,878,235 80 |
| SURPLUS & CONTING'T GUARANTEE FUND | | $4,249,378 72 |
| Number of Polices in force Jan'y 1, 1879 | | 91,828 |
| Sum Insnred thereby | | $290,774,315 |

NOTE.—If the New York Standard of fonr and a half per cent Interest be used, the surplus is **$11,395,553 30.**

From the Snrplns, as appears in the Balance Sheet, a Dividend will be apportioned to each Policy which shall be in force at its anniversary in 1879.

By the nnanimous action of the Board of Trustees, another important step in advance has been taken in the interest of all Policy-holders and the public, by directing that the preminm rates on old and new Polices shall be reduced fifteen per cent from present tabular rates for Whole Life Annual Premium Polices, with a corresponding eqnitable reduction on the other forms.

The option is given to present members to accept this reduction in cash or to pay full rates on the old plan, and receive equitable additions of insurance payable with the policy; the redactions to be made on the anniversaries of the polices. All dividends are allotted in proportion to the actual contributions of each class to the surplns of the Company.

NEW YORK, February 19, 1879.



# TEAS

We are now supplying all our customers with **Extra Choice Teas** at the very lowest wholesale price, **50c.** per pound. **Good Teas,** 30c., 35c. and 40c. per pound; and on Tea Orders of $5 and upwards,

## All Express Charges Paid.

Our business connections with China and Japan, direct importations from the place of growth, long experience in the business, and special contracts with the Express Co.'s for reduced rates, place us before the public as the

**Leading Tea House in the U. S.,**

and the **PIONEERS IN REDUCING PRICES** and **KEEPING THEM DOWN.**

Don't give high prices, but send direct to the

## OLD RELIABLE TEA HOUSE

(The Great American Tea Company),

and get your goods at

**Greatly Reduced Prices.**

Don't he deceived by other coneerns who imitate our style and manner of doing business.

We urge all lovers of good Teas to give us a trial.

**Special Inducements on Large Orders.**

FULL PARTICULARS FREE.

## THE GREAT AMERICAN TEA CO.,

**Importers, 31 and 33 VESEY STREET,**

P. O. Box 4,235. **NEW YORK.**

*The Largest and Cheapest Tea House in the United States.*



# H.W. JOHNS' ASBESTOS Liquid Paints.

These are the purest, finest, richest and must durable paints ever made for structural purpose. They are prepared ready for the brush in sixteen newest shades and standard colors, suitable for the tasteful decoration of dwellings and all classes of buildings, inside and out, and for all purposes where a perfect protective coating is required, and, covering body and durability considered, *they are twenty-five per cent cheaper than the best White Lead or any other kind of paint now in use.*

☞ *Our Asbestos Liquid White has been adopted for interior and exterior work of the U. S. Capitol at Washington.* ☜

☞ *The Metropolitan Elevated R. R., of New York City, is painted with our paints.* ☜

**ASBESTOS ROOF PAINT.**—Brown and gray and cream, for tin and shingle roofs, iron work, agricultural implements, fences, outbuildings, etc. *We guarantee this to be a better article than has ever before been offered to the public for similar purposes.*

Special Prices to large consumers. Samples of Colors and Descriptive Price-Lists by Mail.

**H. W. JOHNS' MF'G. CO.,**
**87 Maiden Lane, N. Y.**

Manufacturers of **Asbestos Roofing, Boiler Coverings, Steam Packing, Sheathing, Cements, Coatings,** etc.

**Improvement for 1879.**

## THE SAFETY HOT BLAST OIL STOVE.

☞ Does not heat the house. Perfect for all kinds of Cooking and Heating Irons. Always ready and reliable. The most satisfactory Stove made and the Cheapest. ☜ Send for circulars.

**The Whitney Manuf'g Co.,**
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Minn. Early Amber Sugar Cane, St. Paul and North Star Tomatoes, and other specialties of Northern origin and growth. Remember "the further north seeds are grown, the sooner the product will come to matnrity."

Ours is the most northern seed farm in America. Earliest sorts a specialty. Catalogne free.

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**Marks' Patent First Premiums.** Artificial Limbs, with Rubber Hands and Feet. The most *Reliable, Comfortable,* and *Useful,* Illustrated Pamphlet of 112 pages, containing valuable information, sent *free* to those giving satisfactory description of their case. **A. A. MARKS,** 575 Broadway, New York City.



## HOWARD & CO., New York.

*Special Announcement in Relation to*

# WALTHAM WATCHES

| | | | | |
|---|---|---|---|---|
| No. 3, Key-Winder, | $ 9 90 | former price, | | $13 |
| " 3, " " | $12 70 | " " | | $18 |
| " 7, " " | $16 90 | " " | | $20 |
| " 8, " " | $21 80 | " " | | $25 |
| " 10, " " | $29 90 | " " | | $33 |
| No. 3, Stem-Winder, | $13 70 | former price, | | $18 |
| " 3, " " | $16 60 | " " | | $24 |
| " 7, " " | $21 90 | " " | | $27 |
| " 8, " " | $26 80 | " " | | $32 |
| " 10, " " | $34 90 | " " | | $40 |

All are New Model Movements, in Solid Sterling Silver Cases (guaranteed), and the best finished Watches of these grades ever made by the American Watch Co. We have used the above numbers for years, and they are well known to our customers all over the country.

TERMS FOR THESE SPECIAL PRICES: **Money must be sent with the order**; Post-office Order is best and safest; next to that, Registered Letter. The Watch ordered will be sent at once, in perfect running order, safely packed to go any distance, and with two extra crystals. All charges will be pre-paid by us to any part of the Union, no matter how remote.

Price-lists with full particulars sent free to all who write for it.

We do not care to sell to the Trade, and make no discount whatever; if dealers wish to buy of us, they must remit the same amount as any one else. Address

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THE

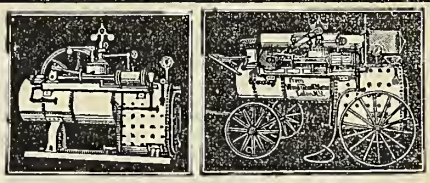
## Only Sensible Shoe for Children

Are those with the SILVER or

## THE A.S.T.Co BLACK TIP UPON THEM.

THEY REDUCE SHOE BILLS ONE-HALF.





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**FOR 1878 AND 1879.**

More effective and more complete, and more readily adapted to the various mechanical and agricultural uses than any other in the market. Practical improvements accumulated from twenty years' manufacturing experience, with reputation maintained and success established.

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**WOOD, TABER & MORSE,**
**Eaton, Madison Co., N. Y.**



## RIDGE'S FOOD for INFANTS AND INVALIDS

Has received the most unqualified testimony from Physicians, Matrons and Mothers of the highest character and responsibility, in this and other countries.

## THE EXTRAORDINARY SUCCESS

that this food has attained in this country (the sales of which aggregate as much as all other foods combined) is due to its intrinsic merit, containing as it does all the elements essential to growth and repair either in the Infant or Invalid. It has been demonstrated that multitudes of infants have been slowly starving at a period of infancy when development and growth are so remarkably active, because of inability of mothers to furnish the necessary nutriment on account of overtaxing the nervons system, and by prolonged lactation, thus lowering the standard of health in both.

## RIDGE'S FOOD for INFANTS AND INVALIDS

Is no new, untried preparation, but has been in use for 30 years, and the price places it within the reach of all.

**WOOLRICH & CO.,** on every label.



**L. E. RANSOM,** 34 MAIDEN LANE, N. Y. CITY
Importer of **Annatto and Dairy Coloring.**

136 pages beautifully illustrated, mailed to all applicants enclosing 10 cts. Regular customers free.

**Bliss' Illustrated Amateur's Guide** to the **Flower and Kitchen Garden,** with colored chromo; 216 pages, price **35 Cents.**

# NEW SPRING WHEATS.

## 128 Bushels to the Acre.

## 791 lbs. Champlain, 528 lbs. Defiance,

### Grown from a Single Pound of Seed.

**Heads 5 to 7 inches long, 75 to 100 kernels per head.**

**CHAMPLAIN,** a red, bearded variety—cross between the Black Sea and Golden Drop.

**DEFIANCE,** a white, bald variety—cross between the Club and a white California wheat.

Prices of each variety:—75 cts. per lb.; 3 lbs., $2, by mail, prepaid. At purchaser's expense: $5 per peck; $15 per bushel.

Our Wheat Circular, giving cultivation whereby the above yields were produced, reports of successful competitors for our $250 Premiums offered in 1878, and full of valuable information to all wheat growers, mailed to all applicants.

**LOST NATION.**—A new variety of spring wheat, highly esteemed in many localities. 3 lbs. by mail $1.00; $1.00 per peck; $3.50 per bushel.

**WHITE RUSSIAN.**—A variety of superior quality, recently introduced, highly recommended. 3 lbs. by mail $1.00; peck $1.00; bush. $2.75.

# PEARL MILLET.

Clean Seed, 15 cts. oz., 40 cts. ¼ lb., $1.00 lb., 4 lbs. $3.50. Seed in chaff, 50 cts. pt., 80 cts. qt., by mail, post-paid. Prices to the trade will be given on application.

# Prickley Comfrey Roots.

15 cts. oz., 40 cts. ¼ lb., $1.00 lb., by mail, post-paid, directions for cultivation accompanying each lot.

## NEW DWARF EARLY PEA.

## BLISS' AMERICAN WONDER.

The best early Pea in cultivation, does not require bushing, ¼ pt. pkts. 15 cts., pint 40 cts., qt. 75 cts., by mail.

## EARLY LIMA BEAN.

A careful trial of this variety the past season proved it to be ten days earlier than the ordinary variety. 25 cts. per packet. Pint, $1.00, by mail, post-paid.

## The Earliest Sweet Corn in Cultivation.

**DOLLY DUTTON.**—The earliest Sweet Corn ever introduced. A very dwarf growing sort, stalks from three to four feet high. Ears small, averaging from four to five inches in length, kernels of good size, tender, very sweet and delicious. It ripens from seven to ten days earlier than the Early Minnesota, and is of much better quality. Pkt., 10 cts.; pint, 40 cts.; quart, 70 cts.; select ears, 10 cts. each; $1.00 per doz., by mail, post-paid.

## NEW EARLY FIELD CORN.
## Queen of the Prairie.

A variety of Yellow Dent Corn which originated in one of our Western States, and has been carefully selected by the growers for several years, and has proved one of the earliest varieties of Field Corn in cultivation. It was planted, the last season, after the wheat crop had been harvested, and matured the crop perfectly. It was also planted on Long Island, July 4th, and fully matured the first of October.

Selected ears, 25 cts.; 3 lbs., by mail, post-paid, $1; shelled, $1.50 peck; $4 per bushel.

## Blunt's White Prolific Corn.

Mr. Blunt, writing to the "Country Gentleman," says: The Improved White Prolific is the most satisfactory white variety I have ever raised. The average number of ears to the stalk is six good-sized ears, and fourteen the largest number on any one stalk. I selected 100 stalks that made a little over three bushels shelled corn." Our seed of this variety is very extra, having yielded from 80 to 100 bushels per acre the past season. Price per bush., $4.00; ½ bush., $2.50; peck, $1.50; ½ peck, $1.00; qt., 50 cents. By mail, pkt., 10 cents; 50 cents per lb.; 4 lbs., $1.50; selected ears, 25 cts.

## Premium Chester Co. Mammoth or Golden Dent,

the largest, best, and one of the most profitable varieties for the main crop. Bush., $3.00; peck, $1.00; select ears, 75 cts. doz.; $5.00 per hundred. By mail, 3 lbs., $1.00—ears 25 cts. each.

## Compton's Early Field.

Bush., $3.00; peck, $1.00; select ears, 75 cts. per doz.; $5.00 per hundred. By mail, 3 lbs., $1.00—ears 25 cts. each.

## Persian Insect Powder Plant.

We have been very fortunate in securing a supply of the seed of this plant, from the blossoms of which the well known **"Persian Insect Powder"** is produced.—A packet of seed will supply enough of the material for the use of an ordinary size family for a year.—Directions for sowing the seed and preparing the Powder sent with each package. 25c. per pkt.; 5 pkts. $1.

LATE SNOWFLAKE.

## New Varieties of Potatoes.

**BLISS' TRIUMPH.**—An extra early variety, ripening a week to ten days earlier than the Early Rose—and one of the most attractive in appearance. Superior quality and very productive.

**TROPHY.**—A new and exceedingly fine, medium early, red-skinned variety, resembling the Snowflake in appearance and quality. It might with propriety be called a Red-Skin Snowflake.

Price of each, 75c. per lb.; three lbs. $2.00, by mail post-paid. Peck $2.00; ½ bush., $3.00; bushel, $5.00; bbl., $12.00.

**LATE SNOWFLAKE.**—A sport of the Early Snowflake, and fully equal to that favorite variety in quality and appearance, ripening three weeks later, and much more productive. 60 cts. lb.; 2 lbs. $1.00, by mail; peck., $1.50; bush., $4.00; bbl., $8.00.

All the leading varieties of potatoes at market price.

## The Great Centennial Exhibit.

### 500 Named Varieties Potatoes.

The largest collection in the world, for which was awarded the Grand Centennial PRIZE MEDAL and DIPLOMA,

**One Tuber each** of the entire collection, correctly labeled, and carefully packed, express or postage prepaid: 500 varieties, $100; 250 varieties, $50; 100 varieties, $25; 50 varieties, $15; 25 varieties, $8.

**BLISS' ILLUSTRATED POTATO CATALOGUE,** 48 pages, contains a descriptive list of all the new varieties recently introduced, with many other desirable sorts, beautifully illustrated. Centennial collection of 500 varieties. Also much useful information upon the cultivation of this valuable esculent. 10c.

## Dioscorea Batatas—Chinese Yam.

One of the most valuable esculents in cultivation, though but little known; is quite hardy, remaining in the ground over winter without protection. They may be boiled or roasted, and when cooked possess a rice-like taste; are quite farinaceous, nutritive, and valuable for food. It is also a very desirable climbing plant, suitable for covering screens, doors, and unsightly places. It is sometimes called "Cinnamon Vine," on account of the peculiar odor of its blossoms. Small bulblets, in packets of one dozen, 20 cents; $1.50 per 100; 1 year-old roots, $1.25 per dozen; $6.00 per 100.

## Kenney's Early Amber Sugar Cane.

In this variety we have a plant that is destined to prove of immense value to the northern portions of our country. Its saccharine qualities are of the first order, fine and rich, and its earliness highly recommend it to the whole country. When planted early in May, the seed almost invariably ripens, thus giving one the advantage of a double crop in one year, from one planting, some 20 or 25 bushels of seed, and 150 or more gallons of fine syrup per acre—900 lbs. sugar were produced from one acre in Minn. All kinds of farm stock are fond of the seed. We have samples of sugar in our office produced from this variety equal to the best coffee sugars in the market. By mail, 60 cents per lb. 3 lbs. $1.50. Prices for larger quantities upon application.

## Collections of Flower Seeds by Mail.

The following collections contain the most showy varieties in our large assortment, with full directions for culture:

**Collection A**—Contains twenty choice varieties of Annuals .......... $1 00
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## Gladiolus purpureo-auratus.

This is a new species from Natal, quite distinct from the common species of Gladiolus, and very attractive. On a slender, bending stem, which rises to the height of three or four feet, are borne from eight to twelve nodding flowers, somewhat bell-shaped in form, and yellow in color, with broad purple stripes on the lower divisions within. Now offered for the first time in this country. 25 *cents each*; $2.50 *per doz.*

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## BLUNT'S WHITE PROLIFIC.

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I offer selected seed of this notable field corn at the following prices.

By mail post-paid, ¼ lb. 25c., 1 lb. 75c., 3 lb. $2.00. By express or freight, 1 peck $3.00, 1 bushel $8.00.

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(Introduced by me last year.)

Clean Seed (50 lbs. to the bushel), 30c. per ¼ lb.; $1.00 per lb., by mail, prepaid. Per peck, $7.30. Bushel, $25.00.

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Are prepared to offer special inducements for the spring of 1879, on Apples, Crab Apples, Tetofsky, Haas, Pewaukee, Peaches, Cherries, Currants, and Gooseberries, Raspberries, Blackberries, and a general Nursery Stock.

We respectfully solicit correspondence.

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**W. B. JONES',**
**BIRDSVILLE "SEED FARM,"**
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Producer and Dealer in Southern Acclimated Field and Garden Seed, carefully selected, for sale. Pearl Millet and Seeds of other forage crops for sale. Drop a postal card for Circular and Price-List.

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**Bastian's Early Blood Turnip Beet.**—The best of the earlies; a great acquisition. Per ounce, 12 cents; per pound, $1.25.

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As the original introducer of these three splendid winter varieties, I offer seed grown specially for purity.

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**Danver's Carrot.**—$1.50 per pound; 15 cents per ounce. Forty tons have been raised to the acre.

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My Seed Catalogue, treating of all the above varieties in detail, and an immense collection of vegetable and Flower Seed, will be sent *free* to all who write for it.

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## IMPROVED PROLIFIC WHITE
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Selected and saved by myself, 4 to 10 ears on a stalk—79 to 161 bus. shelled corn per acre.

Price by mail, 50 cents per pint; 75 cents per quart; $2 per bus.; $3 per two bus., by Express or freight. Remit by Reg. Letter. **A. S. BEEKMAN,**
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**LANE'S**
## Imperial Sugar-Beet Seed.

The best root to feed cows or young stock. 40 tons raised per acre. ¼ lb., 25 cts.; 1 lb., 75 cts. Postage added,
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**GREENLEE CORN.** 32-rowed, nothing new, tested for 50 years on one farm, large ears, matures early, highly productive. For full description and price list send postal with address to J. C. GREENLEE, Harland Farm, East Bethlehem, Wash. Co., Pa.

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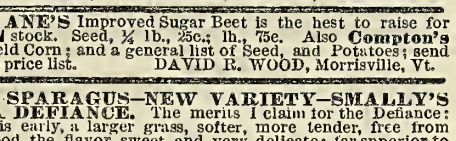
Established in 1831.

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A new variety of our own production, which we offer for the first time to the public, and can confidently say it is the best Lettuce for family use ever introduced. Possessing more good qualities than any variety we have ever tried. The entire stock of this valuable introduction is in our hands. Give it a trial. **Price, 25 cts. per packet, or 5 packets for $1.**

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Red Brazillian and White French Varieties, cheapest hog food known. Send for Circular. E. F. BROCKWAY. Ainsworth, Iowa. Say you saw this in *Am. Agriculturist.*

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THE BEST ANNUAL FODDER PLANT,
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Roots for sale, in large or small quantities. Per lb., post-paid, $1; per 10 lbs., $7.50; per 100 lbs., $60.

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CHOICE CLEAN SEED, FREE FROM HUSK,
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New Varieties. **CHOICE SEEDS.** From Best of Stock.

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# CORN
## TO ONE ACRE.

**McCLURE'S PROLIFIC CORN** produced 214 bushels to the acre, proof of which was given in October 15 issue of FARM AND FIRESIDE. I will send by mail, post-paid, sufficient seed of this famous corn to plant 10 square rods to any address, on receipt of 25 cents, or 5 packages to one address for $1. Every farmer should procure this wonderfully productive corn. **J. S. Crowell, Manager**
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With it one man, with the aid of one horse, can

**Plant Five Acres a Day,**

viz., open the furrow, cut, drop, and cover the Seed and Fertilizer. **NASH & BRO.,** Manufacturers,
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The whole comprising a total of 1574 ACRES, owned, occupied and cultivated by ourselves. Upon these lands we have applied in a single season, $20,000 worth of purchased fertilizers, a fact which exhibits the magnitude of our operation.

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From which all our crops are grown on all the farms, are produced on Bloomsdale, the Pennsylvania Farm, and under the daily scrutiny of the proprietors, are thoroughly culled of all departures from the true types, and produce crops of such purity of strain as to warrant us in declaring that NONE ARE SUPERIOR, AND FEW EQUAL!

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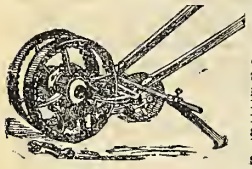

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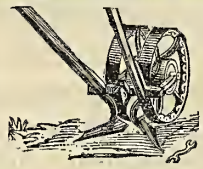

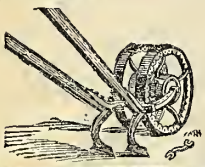

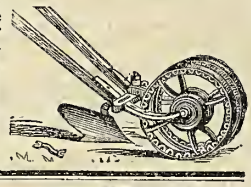

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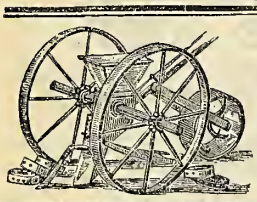
**S. L. ALLEN & CO.,** 229 Market St., Philadelphia, Pa.

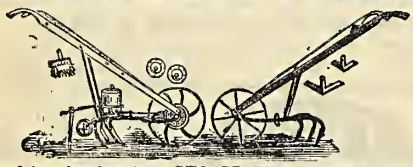


# The Monitor Seed Drill.

This is the most complete and positive Seed Drill ever invented. It is radically different from and superior to all others. It is the **only** machine which measures and drops the seed with a positive motion, and exactly the same amount at each foot or yard. It has been tested by 5 years' use in Massachusetts, and was awarded the highest prize at the "Centennial." ☞ The "Monitor" has been thoroughly tested during the season of 1878, and heartily endorsed **as a First Class Machine** by Professor Geo. Thurber, of New Jersey, and by Jas. Vick, of Rochester, N. Y.

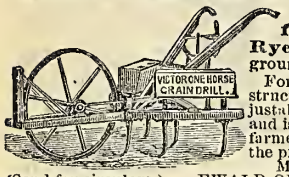
☞ **Agents Wanted.**—For full descriptive circular and testimonials, address THE MERRIMAC MACHINE CO., Newburyport, Mass.

## Rue's Hand Cultivator & Seed Drill.



Send for circulars to GEO. W. RUE, Hamilton, Ohio.

## "VICTOR" One-Horse WHEAT DRILLS,




(3 and 5 hoed) **for sowing Wheat, Rye, Barley,** in fallow ground or in standing corn.

Force feed; simply constructed. The five hoed is adjustable for different widths, and is just what every small farmer ought to have, saving the price of a two horse drill. Manufactured only by

(Send for circulars.) EWALD OVEIT, Indianapolis, Ind.

## Pearce's Improved Cahoon Broadcast Seed Sower.

**For Sowing all kinds of Grain and Grass Seed.**

This machine does as much work as 5 men can do by hand, and does *better* work than can be done by any other means whatever. No more sowing too much to the left. Agents wanted in every county in the United States. Price $6. Send stamp for circular.

**GOODELL COMPANY, Antrim, N. H.,** SOLE MANUFACTURERS.

## Holbrook's "VETO" SEED DRILL & "NEW"

Hand Cultivator sow and cultivate all kinds vegetables. Do work of 10 men. Best and cheapest. Price $12.50 combined.

$9.50 Boxed. $7.00 Steel Teeth.

Circulars Free. Made by E. E. LUMMUS & CO., Boston, Mass.

**OSAGE ORANGE** makes the cheapest fence. 200,000 extra plants for sale. 75 acres in thrifty nursery stock. Price List free. Address J. PERKINS, Moorestown, N. J.

## MATTHEWS' SEED DRILL

**The Standard of America.**

Admitted by leading Seedsmen and Market Gardeners everywhere to be the most perfect and reliable drill in use. Send for circular. Manufactured only by

**EVERETT & SMALL, Boston, Mass.**

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An elegant illustrated quarterly devoted to gardening in all its branches, containing a complete list of Seeds, Plants, Bulbs, etc., at reduced prices, also much information. 10c. per year, sample copy and packet of New Japan Cockscomb Seed for 3c.

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Sent by mail, safe arrival and satisfaction sure. Lists free. Order samples, and see. Address

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**FOR $1.00.** **By Mail Post-paid. 24 Choice Plants & Bulbs, and 2 packets Flower Seed. 12 for 50 cts.** Choice new varieties of Strawberry Plants given away, Vegetable Seeds, etc. Also high-class Poultry, Eggs, etc. Send for prices and particulars. Free to all. **ROB'T. LEWIS,** Hope Hill Garden (*Name Paper.*) **Castleton-on Hudson, N. Y.**

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# POTATO AND COTTON BUGS.

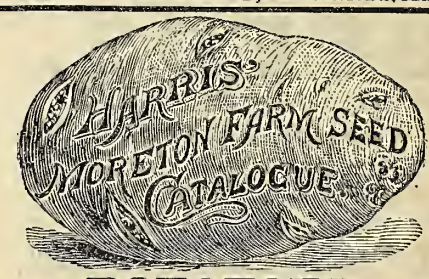
**THE NEW INSECTICIDE.** **London Purple.** (Trade Mark.)

Superior to and **one-third** the price of Paris Green. Manufactured only by HEMINGWAY & CO., 60 Mark Lane, London, Eng., New York P. O. Box 990, who will forward address of nearest dealer from whom supply can be obtained.

## Marblehead Mammoth Cabbage

There being a good deal of seed in the market raised from very poor stock, which must fail to give satisfaction, having been the original introducer of the Giant Cabbage, which when raised from the right strain of seed under proper cultivation, has been grown to weigh *over 60 pounds* to a single plant, and sixty tons to the acre, I now offer to the public seed that has been raised by myself, with peculiar care, all of it *from extra large, extra solid heads.* The Marblehead Mammoth is not only the largest, but is one of the most crisp and sweetest of all varieties of the cabbage family, as will be seen by extracts of letters to be found in my Seed Catalogue, where my customers state that they have raised cabbages from my seed that have weighed 40, 45, and 50 pounds each. Full instructions for cultivation sent with every parcel of seed. Seed per pound, $5.00; per ounce, 50 cts.; per ¼ ounce, 25 cts. My large Seed Catalogue sent *free* to all applicants. My very thorough treatise on Cabbage Raising, 30 cts.

**JAMES J. H. GREGORY, Marblehead, Mass.**

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**Barley, Corn, Beans, Turnips, Mangel Wurzel, &c.**

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With directions for cultivation. Sent free, pre-paid, by return mail, to any readers of the *American Agriculturist* who send me their address on a postal card.

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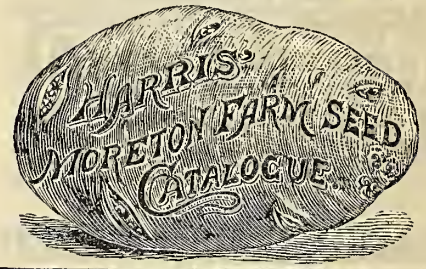
**Moreton Farm, Rochester, N. Y.**

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STANDARD VARIETIES.—SELECTED STOCK. Also a large and choice lot of Seed Sweet Potatoes. Imported Early Pea Seed. All at lowest cash figures.

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All kinds. Low prices. Send for Price List.

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**THE BEST IN AMERICA!** Mammoth Pearl Potato. $50.00 paid (after satisfactory proof) to any person having a potato possessing as many good qualities as this. See adv. in March No. Price, 50 eyes, 50cts.; 150 eyes, $1.00. J. A. EVERITT, Watsontown, Pa. Box 229.

**Broom Corn Seed.** Evergreen Improved. Extra fine brush. Good length and free from curl. Never gets red. 50 cts. quart by mail. SAMUEL WILSON, Mechanicsville, Bucks Co., Pa.

**WHITE WATER LILY.**—Strong roots of this fragrant Lily, with printed directions for planting in tubs and ponds, 25 cts. each, $2 per doz., by mail, MANN BROS., Randolph, Mass. P. O. Box 162.

**GLADIOLUS**—First-Class Bulbs, from $15 per 1,000 upward. Tuberoses—fine double-flowering bulbs, $12 per 1,000. A retail catalogue of the above on application.

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# CUTHBERT RASPBERRY.

See Illustration in March No. *Am. Agriculturist*, page 101. This variety promises to be the great market raspberry of the country, hardy thus far in winter, and the foliage endures without harm the hot sun. Grows vigorously everywhere, even on light sandy soils. Chas. Downing says: "I consider it the most promising *market* raspberry before the public, as far as yet tested. The fruit is large, very firm, and the plants, as I have seen them, are vigorous growers and exceedingly productive."

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The largest and most beautiful of Raspberries. Took the 1st Prize at Boston, but it belongs to the Antwerp class. Also the Crescent Seedling, Forest Rose, and all the other new and standard kinds of **Strawberries**, also **Currants**, **Grape Vines**, Gooseberries, Blackberries—pure, first-class plants. Prices very reasonable. Descriptive Catalogue free. Address

**GREGG** and all the best new and standard varieties.—**SHARPLESS,**

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**STRAWBERRY PLANTS.**
100 Crescent Seedling.
100 Great American.
100 Cumberland Triumph.
100 Monarch of West.
100 Boyden's 30.
100 Wilson's Albany.
**GRAPE-VINES.**
15 Concord.
12 Hartford Pro.
8 Martha (White).

**Either Kind, Post-Paid,**
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Descriptive Catalogue **Free.**
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**RASPBERRY PLANTS.**
50 Brandywine (Red).
35 Delaware (Red).
25 Hirstine (Red).
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50 Doolittle's Imp.
**BLACKBERRY PLANTS.**
35 Kittatinny.
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35 Dorchester.
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# Strawberry PLANTS.

**E. P. ROE** Has a Superb Stock of the Coming New Strawberries,

**Crescent Seedling, Forest Rose, Sharpless, Prouty's Seedling, Great American, and all the Standard Kinds.**

The N. Y. Horticultural Society gave his Strawberries the 1*st Prize* in 1877; again the 1*st Prize*—a gold medal—in 1878. Also 1*st Prize* from Newburgh Bay Hort. Society, and 29 minor premiums from various Societies. The Massachusetts Hort. Society awarded him the 1*st Prize* in '78 for the largest and best collection of Raspberries. He has also the largest stock in the country of the two Great Raspberries,

**CUTHBERT and PRIDE OF THE HUDSON**

and all the leading varieties. His family list of small fruit plants is the best and most liberal ever offered.

## $15 Worth of Plants for $5.

Descriptive catalogue free to all. Address.
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**$1,000 WORTH OF**
**RASPBERRY PLANTS**
**GIVEN AWAY.**

Strawberry, Blackberry, Currant, Grape, Gooseberry and Asparagus; 100 Varieties. Strong plants true to name. Extraordinary offer. Family Supply. 20 varieties $3. Circulars free. G. H. & J. H. HALE, So. Glastonbury, Conn.

## Crescent Seedling Strawberries.

at bottom prices of any one advertising in this paper; Great American, $3.60 per 1,000. Miner's Great Prolific, $10 per 1,000; Raspberries, Blackberries, Currants, Gooseberries Fruit Trees, etc. Send for Catalogue, and see prices.
**S. C. DE COU,**
**Moorestown, Burlington Co., N. J.**

## 1,000,999

*Strawberry, Raspberry, Blackberry, Currant, Grape-Vines, Asparagus Roots, Peach-Trees.*

**100 SELECTED VARIETIES.**

Some prices page 117, last No. *Genuine stock. Quality best. Prices lowest.* Send for free Catalogue to
**JOHN S. COLLINS, Moorestown, New Jersey.**

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**GOOD CURE FOR HARD TIMES.**

**A PLANTATION OF EARLY PROLIFIC and RELIANCE RASPBERRIES.**

**100,000** Plants **FOR SALE**; *also* **200,000** *Cinderella* and *Continental Strawberry Plants.* Millions of other Plants, Trees, etc. Everything **new, novel,** and rare. *Prices low.* Send for *Descriptive Circular* to **GIBSON & BENNETT, Nurserymen and Fruit Growers,** Woodbury, N. J.

## SHARPLESS' STRAWBERRY.

The Largest, Best Flavored, and Most productive. Berry grown with ordinary culture from 6 to 12¼ inches round. 40 page Catalogue of GREENHOUSE PLANTS & SMALL FRUITS **free**; with colored plate of Sharpless, 10c. Address [Mention this paper.] J. L. DILLON, Bloomsburg, Pa.

BEAUTIFUL FLORAL PLANTS BY MAIL.

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**STRICTLY FIRST CLASS**
**SMALL FRUIT PLANTS,**
**SEEDS, and SEED POTATOES.**
Catalogue free. Address F. M. HEXAMER, New-Castle, Westchester Co., N. Y.

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**STRAWBERRY PLANTS.**

15 Acres devoted to Strawberries; over 30 varieties. The finest and most extensive stock in the New England States. Catalogue and Price List sent free.
**CHAS. S. PRATT, North Reading, Mass.**

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**STRAWBERRIES.**

Parmelee's Crescent Seedling. Most valuable discovery yet. Send for circular giving full accounts.
**H. H. SMITH, West Haven, Conn.**

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**STRAWBERRY PLANTS.**

Crescent Seedling, $3 per 1,000 | Chas. Downing, $2 per 1,000
Great American, $4 per 1,000 | Wilson's Albany, $2 per 1,000
Packed in the best manner, free.
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## Eureka Strawberry Huller.

**Sent by mail for 10 cents each.** Address
**A. S. BUNKER,**
288 Common street, Lawrence, Mass.
Agents wanted.

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## BRANDYWINE NURSERY.

First-class Plants. French's, Cumberland Triumph, Kentucky, Sharpless, and other Strawberries. 1-year-old CC Asparagus, 1 and 2-year-old Osage, Rhubarb, Currants, Kittatiny and Wilson Blackberries. Pride of Hudson, Herstine, Bristol, Brandywine, Highland Hardy, and other Raspberries. Grape Vines, Fruit and Shade Trees, and Evergreens. **Send for prices and four liberal offers to**
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## PEARL MILLET.

Just received a full lot of *Extra Cleaned Seed*, 10 cts. per ounce, 25 cts. per ¼ lb., 85 cts. lb., post-paid, New Amber Cane Seed 50 cts. lb., post-paid. Send for our Illustrated Seed Catalogue containing 7 special premium offers. (With every order for $3 worth of seeds by the packet and oz., we send the *Am. Agri.* 1 year free.) Also price list of Trees and Plants. Get our prices before buying.
**FERRIS, MINARD & CO., Poughkeepsie, N. Y.**

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**$20** Worth of Small Fruit Plants **FOR $5**
—**30 Selected Varieties** for the family—**Splendid List** for **EVERY HOME.** Fine opportunity for Clubs or Agents. **$100** worth, or five **$5** Lists for **$20.** *See liberal offer.* Send for Catalogue, *free.*
JOHN S. COLLINS, Moorestown, N. J.

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## JOHN SAUL'S
## Catalogue of New, Rare, and Beautiful Plants.

will be ready in February, with a colored plate.—Many new and beautiful Plants are offered, among Draceænas, Crotons, and other fine foliage plants, with a rich collection of Greenhouse and Hot-house Plants; Bedding Plants; new and choice Roses; Dahlias, etc. Well grown and at low prices. Free to all my customers, to others 10c.—a plain copy free.
**JOHN SAUL, Washington, D. C.**

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## NEW & RARE PLANTS.

The largest and most remarkable collection ever offered for sale in this country. Also an extensive assortment in large quantities of **FRUIT** and **ORNAMENTAL TREES, SHRUBS** and **VINES.**

**SPECIALTIES—Japanese Maples, Rhododendrons, Hardy** and **Greenhouse Azaleas, Camellias, Roses, Magnolias, Purple Beech,** and **New** and **Rare Plants.**

Price-list free. Descriptive Catalogue 10 cts.
**PARSONS & SONS CO.** (Limited),
**KISSENA NURSERIES, Flushing, N. Y.**

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## To Lovers of Flowers.

My list of Flower Seed comprises all the old favorites and many of the newer sorts. Also a selection of Ornamental Grass and Fern Seed. The common German and Botanic name of the seed, a description of the flower, and directions for culture is printed on each packet. **The sorts named by parties ordering, or my own selection.** *Sent by mail, post-paid, at the following rates: Per 7 packets,* 25 *cts.; per* 14 *packets,* 50 *cts.; per* 30 *packets,* $1.
**F. E. McALLISTER, 29 Fulton St., N. Y.**
Postage stamps accepted. Please mention this paper.

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## $1.00 FLOWER GARDEN $1.00

13 Monthly Blooming Roses or, 22 Splendid Verbenas, $1. 4 Geraniums, 4 Abutilons, and 4 Begonias or 12 Carnations, $1. 4 Fuchsias, 4 Carnations, & 4 Double Petunias, all different, $1. 4 Calla Lilies, 4 Tuberoses and 4 Smilax or 12 Geraniums, $1. 5 Heliotropes, 5 Lantanas & 5 Chrysanthemums or 10 Fuchsias, $1 2 Golden Tricolor, 4 Silene & 2 Happy Thought Geraniums, $1. Sent by mail postage paid, or the 6 collections per ex. for $5. Illustrated catalogue sent free on application.
**Sked Paddock & Co.,** Cleveland O.

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## "FRUIT of the GODS."

**(Diospyros Kaki) the Japan Persimmon.**
We offer choice varieties of this most remarkable new fruit, imported direct from Japan. *Iron-clad* Apples, *Sharpless Seedling* Strawberry, *Gregg* Raspberry, *Snyder* Blackberry. Complete assortment of *Fruit, Shade,* and *Ornamental* Trees and Shrubs. *Roses,* Flower and Plant *Novelties.* Send for new Catalogue. **BAIRD & TUTTLE, Agents, Bloomington Nursery, Ill.**

*containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.*

Continued from Page 133.

**In justice to the majority of our subscribers, who have been readers for many years, articles and illustrations are seldom repeated, as those who desire information on a particular subject can cheaply obtain one or more of the back numbers containing what is wanted.**

**Back numbers of the "American Agriculturist," containing articles referred to in the "Basket" or elsewhere, can always be supplied and sent post-paid for 15 cts. each, or $1.50 per volume.**

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**Beet-Sugar in Maine.**—If there is anything that it is safe to predict, it is that the raising of sugar-beets and the manufacture of sugar from them, must, at some time, sooner or later, become an important industry in this country. The pioneers of beet-sugar in this country, the Gennert Brothers, in spite of former failures, are still at work, and as hopefully as ever. They are now engaged by the State of Maine, to carry on experiments with a view to promote this interest, and from what we learn from the elder Gennert, in a recent brief interview, their report will possess great interest, not only for the people of Maine, but for others. They find that beets very rich in sugar may be raised in the very northern most parts of the State, on the borders of Canada. To save transportation, fuel being cheap, the beets raised there are dried, thus reducing them to one-fifth of the original weight. The introduction of a new crop and a new industry has many obstacles to contend with, especially among farmers who are by nature conservative and cautious. In Europe, one of the great advantages of sugar-beet growing is that the "marc," or pulp, after the sugar is extracted, is worth nearly as much as food for cattle as were the original roots, and the establishment of a beet-sugar factory in a farming neighborhood is looked upon as a blessing, as it supplies the farmers with such valuable feed. In the Maine experiments, the Messrs. Gennert were offered a very good price for the pulp, to be taken out of the State; they did not feel at liberty to sell it thus, but offered it to farmers in the State who would pay the freight on it; the railroads co-operated by carrying the pulp to any point at a nominal price of 50c. a ton. Strange to say, they could not get rid of their pulp on these terms! The whole matter was so new, the farmers were so unused to this kind of cattle food, that they were afraid, as a general thing, to accept as a gift what a few large farmers were willing to pay a good price for. This, and all other obstacles, will ultimately be overcome, and each State, where the climate will allow, will not only produce all the sugar it consumes, but have a surplus. We expect to see the time when beet-sugar factories, owned by farmers, and conducted similarly to the cheese factories, will be established all over the country and with most beneficent results to our agriculture.

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**A Big Fish—Spearing Pickerel.**—Jan. 15th a long, suspicious box came to our sanctum, expressage paid, which from its feel and a slight trace of blood, would have been turned over to the Coroner or police, to open, had it been a little wider and deeper. Removing the cover with due caution, revealed a Chautauqua Lake pickerel about as long as a man, over six and twenty pounds in weight, and meat enough to supply sundry steaks, fries, broils, and a "chowder" for half a dozen of the editorial corps—of a quality so good as to beget a strong desire to have a hand in the paying sport presented by the "Silvery Lake" to many a resident. A note in the box added to the pleasure of eating this particular fish, as it informed us that it came as a friendly recognition of our work from an old reader of the *American Agriculturist*, Mr. ISAAC NOBLE, of Fluvanna, Chatauqua Co., N. Y., now in his 70th year, who caught the fish himself, on Jan. 9.—In answer to our letter of inquiry, Mr. Noble gives us a number of particulars of which we have only room for the following: His neighbor, Maj. Arnold, caught a pickerel this winter that turned the scales at 36 lbs. Three others caught this year weighed 26 lbs., 27½ lbs., and 32 lbs. In past years another neighbor has taken seven that weighed 33 to 35 lbs. each, which is above the maximum weight, though one of 48 lbs. was reported a few years ago.—In fishing, they erect, with thin boards upon the ice, a little house, 3 x 4 feet, 4½ feet high, painting it black inside, as light scares off the fish. A hole in the floor, 2 feet square, sits over a little larger cutting through the ice. A spear with a handle 5½

feet long, weighted with lead, hangs on one side of the hole, with half its length in the water, ready for instant use, when a pickerel comes within reach. A strong cord is fastened to the end of the spear handle. A gaff-hook is used for landing the fish after bringing him to the opening with the spear and cord. A decoy fish is made of wood, 4 to 6 inches long, with sheet-iron fins and leather tail, weighted to keep it in position, and painted to look natural in the water. This is attached to a cord 6 or 8 feet long, and by bending the tail is made to sail around near the opening. It is often grabbed by the pickerel, which is in turn impaled upon the spear.

## Catalogues Received.

SEEDSMEN.

R. H. ALLEN & Co., No. 189 and 191 Water St., N. Y. City, is as neat and as full as usual; it contains a number of specialties in the way of fodder crops.

W. E. BARRETT & Co., Providence, R. I.—Roger Williams invented Sweet Corn; his successors have discovered and invented many excellent things, and what B. & Co. don't know about them isn't worth knowing.

HUGO BEYER, New London, Iowa, offer vegetable and flower seeds "grown in and for the West."

J. BOLGIANO & SON, 28 So. Calvert St., Baltimore, Md. This house, established in 1823, keeps up its reputation.

PAUL BUTZ & SONS, New Castle, Pa., offer tested vegetable and flower seeds.

JOSEPH HARRIS, Moreton Farm, Rochester, N. Y.—Special notice was given last month.

R. D. HAWLEY, Hartford, Conn.—Several specialties. Agricultural implements, etc.

HOVEY & Co., No. 16 So. Market St., Boston, Mass.—The same well known firm, with all modern additions and improvements.

J. R. & A. MURDOCH, Pittsburgh, Pa., have a very full seed catalogue, to which they add a large list of greenhouse and other plants.

ISAAC F. TILLINGHAST, Factoryville, Pa.—Vegetable and flower seeds; vegetable plants and new potatoes.

ROBERT VIETCH & SONS, New Haven, Conn., issue wholesale and retail catalogues of seeds, and offer a large collection of plants.

SAMUEL WILSON, Mechanicsville, Pa., offers a large list of seeds of his own growing and others.

NURSERYMEN.

GEORGE ACHELIS, West Chester, Pa., sends his wholesale list of a very large stock suited to the trade.

S. J. ALLIS, Erie, Pa. Grapevines and small fruits generally, with sensible advice.

FRANCIS C. BIDDLE, Chadd's Ford, Delaware Co., Pa. General nursery stock, with special offers for collections.

CROSBY, GORDON & Co., Danbury, Conn. The name of this firm of nurserymen was misspelled last month.

OLIVER DODGE, Concord, N. H. A general assortment, with several specialties.

SAMUEL EDWARDS, Mendota, Ill. Small fruits, evergreens, etc.

A. HANCE & SON, Red Bank, N. J. A full and interesting catalogue, with illustrated novelties in fruits and ornamental plants.

HEIKES NURSERIES Co., Dayton, O., send their semi-annual Trade List.

F. M. HEXAMER, New Castle, West Chester Co., N. Y. A full list of small fruits, including all the novelties, seed potatoes, and various specialties.

ISAAC HICKS & SONS, Old Westbury, L. I., N. Y. In acknowledging catalogues, we are obliged to be brief and can not say what we sometimes would. We especially commend this catalogue for its brevity. No one knows better than Isaac Hicks what fruits are suited to the peculiarities of Long Island; he gives these, and there stops. Long Islanders will find Isaac a safe guide.

D. E. HOXIE, Northampton, Mass., has a full and well-considered catalogue of small fruits.

E. C. HUBBARD, Water Valley, N. Y., makes a specialty of small fruits, and has all the novelties.

R. S. JOHNSTON, Stockley, Del. General fruit list, and makes a specialty of June-budded peach-trees.

KELSEY & Co., St. Joseph, Mo., send their wholesale list, which, besides general nursery stock, includes greenhouse plants.

SAMUEL KINSEY, Dayton, O.—Wholesale list for this season, with various accessories, such as imported stocks, cuttings, etc.

LAPHAM & ANTHONY, Clayton, Del., call theirs the "Dollar Nursery," as they make a speciality of sending $1 collections of small fruits by mail.

WM. S. LITTLE, Rochester, N. Y., sends a wholesale list of stock in every department.

J. W. MANNING, Reading, Mass., has some very sensible talk in his catalogue. We are glad to see that he advocates the planting of one of our favorite native shrubs—*Clethra alnifolia*, of which he gives a cut.

D. R. MARVIN, Watertown, N. Y., makes a specialty of grapevines and offers a large list.

RANDOLPH PETERS, Wilmington, Del., being on the border between North and South, includes varieties belonging to both sections. Peaches are a specialty with him; of these he makes, according to the time of ripening, no less than 15 classes!

H. H. SMITH, West Haven, Conn.—Small fruits, especially that "wonderful berry" the Crescent strawberry.

STEELE BROS., La Porte, Ind.—A list of small fruits, and giving their experience.

JOHN VANLOON, New Amsterdam, Wis.—A choice selection of small fruits, specialties in seeds, and to those who purchase plants, etc., of him, he supplies the *American Agriculturist* on favorable terms.

J. A. VAUGHN & Co., Carver, Mass.—General fruit and ornamental stock, with cranberries as a specialty.

H. K. VICKROY, Normal, Ill. Small fruits, vegetable plants, and boxes.

E. B. UNDERHILL, Poughkeepsie, N. Y. Small fruits, about which he makes some plain talk.

H. W. WILLIAMS & SONS, Batavia, Ill. Wholesale list of nursery stock. Seed potatoes, tree labels, etc.

FLORISTS.

C. L. ALLEN & Co., Queens, (L. I.,) N. Y. A supplementary list of gladiolus and other bulbs.

P. J. BERCKMANS Augusta, Ga. Greenhouse and bedding plants, especially those suited to Southern gardens.

ROBERT BUIST, 67th street and Elmwood avenue, Philadelphia, Pa. This veteran florist devotes a supplementary catalogue to this spring's novelties.

PAUL BUTZ, New Castle, Pa. Both wholesale and retail lists of a large stock of greenhouse and other plants.

J. L. DILLON Bloomsburg, Pa. Besides greenhouse and bedding plants offers small fruits.

THOMAS ELVERSON, New Brighton, Pa., offers, besides a general collection of plants, choice flower seeds.

W. A. HARKETT, Dubuque, Iowa. A general stock, including the "New and Rare."

HOOPES BRO. & THOMAS, Westchester, Pa. The ornamental department of this establishment, as shown by this catalogue, is very full, while the instructions are concentrated wisdom.

ARNOLD PUETZ, Jacksonville, Fla., offers plants and seeds, including those native to Florida, besides basket work and other local products.

H. S. RUPP, Shiremanstown, Pa. A general plant catalogue, with small fruits.

JOHN SAUL, Washington, D. C.—This catalogue is as full as usual, and, as usual, contains many novelties not offered by others. A special Rose catalogue gives the new roses offered abroad last year, with a brilliant colored plate of "The Queen of the Bedders."

CHAS. T. STARR, Avondale, Pa.—A very full catalogue of "new and beautiful plants;" also vegetable plants.

DEXTER SNOW, Chicopee, Mass., issues one of the most exquisitely neat catalogues that we have seen. The matter appears to be as choice as the manner, and the list of Ferns is very full and select.

W. C. WILSON, 45 West 14th St., New York City, and Astoria (L. I.), N. Y., includes in one catalogue a great variety of greenhouse and bedding plants, nursery stock, and garden and flower seeds. "If you dont see what you want, ask for it."

W. B. WOODRUFF, Westfield, N. J. Besides general fruit stock, offers vegetable plants.

IMPLEMENTS AND MACHINES.

BELCHER & TAYLOR, Chicopee Falls, Mass.—A beautifully illustrated catalogue of a great variety of excellent implements.

BLYMYER MANUFACTURING Co., Cincinnati, O., in their 20th annual edition of their "Sorgo Hand-Book," illustrate and describe their sorgo machinery, steam engines, and other articles.

DAIRY SUPPLY Co., No. 15 Murray St., N. Y. City.—A new Creamery Pan, which seems to combine several excellent features.

JONES, FAULKNER & Co., Utica, N. Y.—Apparatus and supplies for cheese factories, creameries, and dairies in great variety.

MINARD HARDER, Agricultural Works, Cobleskill, N. Y.—Railway horse-powers and thrashers.

NEW YORK PLOW COMPANY, 55 Beekman St., N. Y., offer besides their specialties in plows, a great variety of other implements.

EUGENE ROCK, Glens Head (L. I.), N. Y.—A Picket-stake and Swivel for tethering animals.

WHEELER & MELICK Co., Albany, N. Y., give a full description of their special machines, including horse powers, La Dow's harrow, threshers, etc., etc.

WHITMAN & BURRELL, Little Falls, N. Y.—Boilers, engines, steam-pumps, and dairy supplies of every kind, from gang presses to cheese coloring.

WOOD MANUFACTURING COMPANY, Worcester, Mass., make the emery grinder, for mowers, etc.

WRIGHT & THORNE—The Orange Judd Company, 245 Broadway, N. Y., General Agents.—An illustrated catalogue of Improved Archery Goods, comprising a great variety of great excellence.

FERTILIZERS.

PACIFIC GUANO COMPANY, No. 43 Milk St., Boston, Mass., set forth the merits and give directions for the use of their "Soluble Pacific Guano" in a neat pamphlet.

MAPES' FORMULA AND PERUVIAN GUANO Co., No. 158 Front St., New York, present in a treatise of 40 pages a full account of the various fertilizers made by them.

L. B. DARLING & Co., Pawtucket, R. I., offer pure Ground Bone and the various crude fertilizers, besides fertilizers of their own make. Their publication of the laws relating to fertilizers, and a portion of the report of the State Inspector of Massachusetts, shows a tolerable amount of confidence in their own products.

POULTRY.

LOUIS ANDERSON, Flemington, N. J.—An illustrated list of his special breeds.

G. P. BURNHAM, Melrose, Mass., issues several bulletins concerning his "Standard Premium Fowls."

S. C. SATTERTHWAIT, Aiken, S. C., sends an illustrated price-list of his fowls, turkeys, ducks and geese.

A. N. SHEPHERD, Sand Brook, N. J., offers several breeds, including Plymouth Rocks and Light Brahmas.

FOREIGN CATALOGUES.

MCBROOM & WOODWARD, London, Ont., Canada.—A very neat and full catalogue of garden, agricultural and flower seeds.

FD. CHARRON, Lyons, France.—A very full list of seeds of all kinds.

VILMORIN, ANDRIEUX & Co., Paris, France (Pabst & Esch, No. 21 Murray St., N. Y. Agents.)—The issue for this spring is not less a wonder of completeness than it has been in former years.

## Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, from our record kept daily during the year, show at a glance the transactions *for the month ending March 12th*, 1879, and for the corresponding period last year:

1. TRANSACTIONS AT THE NEW YORK MARKETS.

| RECEIPTS. | *Flour.* | *Wheat.* | *Corn.* | *Rye.* | *Barley.* | *Oats.* |
|---|---|---|---|---|---|---|
| 23 d's *this* m'th.. | 359,000 | 3,215,000 | 2,119,000 | 97,000 | 226,000 | 409,000 |
| 28 d's *last* m'th.. | 337,000 | 2,131,000 | 1,314,000 | 58,500 | 429,000 | 431,000 |

| SALES. | *Flour.* | *Wheat.* | *Corn.* | *Rye.* | *Barley.* | *Oats.* |
|---|---|---|---|---|---|---|
| 23 d's *this* m'th | 378,000 | 8,103,000* | 4,207,000* | 372,000 | 263,000 | 1,093,000 |
| 28 d's *last* m'th | 345,000 | 7,316,000* | 4,104,000* | 383,000 | 290,000 | 1,107,000 |

* Including sales for forward delivery.

2. *Comparison with same period at this time last year.*

| RECEIPTS. | *Flour.* | *Wheat.* | *Corn.* | *Rye.* | *Barley.* | *Oats.* |
|---|---|---|---|---|---|---|
| 23 days 1879.. | 359,000 | 3,215,000 | 2,119,000 | 97,000 | 226,000 | 409,000 |
| 23 days 1878.. | 343,000 | 3,804,000 | 1,516,000 | 91,500 | 569,000 | 403,000 |

| SALES. | *Flour.* | *Wheat.* | *Corn.* | *Rye.* | *Barley.* | *Oats.* |
|---|---|---|---|---|---|---|
| 23 days 1879.. | 378,000 | 8,103,000 | 4,207,000 | 372,000 | 263,000 | 1,093,000 |
| 23 days 1878.. | 339,000 | 3,912,000 | 3,238,000 | 243,000 | 551,000 | 526,000 |

3. *Stock of grain in store at New York.*

| | *Wheat.* bush. | *Corn.* bush. | *Rye.* bush. | *Barley.* bush. | *Oats.* bush. | *Malt.* bush. |
|---|---|---|---|---|---|---|
| Mar.10,1879.. | 3,029,051 | 1,363,672 | 416,078 | 696,625 | 600,750 | 52,853 |
| Mar.11,1878.. | 1,639,371 | 460,454 | 114,200 | 660,145 | 1,090,851 | 275,705 |
| Mar.12,1877.. | 2,646,287 | 1,517,208 | 284,607 | 475,671 | 769,451 | 327,659 |

4. *Exports from New York, Jan. 1, to Mar. 10.*

| | *Flour.* bbls. | *Wheat.* bush. | *Corn.* bush. | *Rye.* bush. | *Barley.* bush. | *Oats.* bush. | *Peas.* bush. |
|---|---|---|---|---|---|---|---|
| 1879.. | 563,000 | 6,981,000 | 5,793,000 | 712,000 | 37,000 | 38,500 | 101,000 |
| 1878.. | 475,400 | 7,483,409 | 2,776,780 | 339,829 | 621,599 | 37,847 | 55,550 |
| 1877.. | 254,958 | 1,576,839 | 2,078,553 | 164,389 | 95,457 | 29,338 | 124,827 |
| 1876.. | 357,715 | 1,910,068 | 2,630,925 | 15,387 | —— | 46,266 | 198,153 |

CURRENT WHOLESALE PRICES.

| | Feb. 12. | Mar. 12. |
|---|---|---|
| FLOUR—Super to Extra State | $3 20 @ 4 25 | $3 35 @ 4 25 |
| " Super to Extra South'n. | 3 25 @ 6 25 | 3 35 @ 6 50 |
| " Extra Genesee.......... | 3 90 @ 5 50 | 4 00 @ 5 75 |
| " Superfine Western...... | 3 15 @ 3 55 | 3 35 @ 3 75 |
| " Extra Western ......... | 3 60 @ 8 75 | 3 75 @ 9 00 |
| " " Minnesota....... | 3 60 @ 8 25 | 3 85 @ 8 75 |
| RYE FLOUR, Superfine....... | 2 65 @ 3 15 | 2 75 @ 3 25 |
| CORN-MEAL. ............... | 2 10 @ 2 75 | 2 00 @ 2 70 |
| BUCKWHEAT FLOUR, ℔ 100 lbs | 1 60 @ 1 85 | Nominal. |
| BUCKWHEAT, per bush ....... | 49 @ 50 | 58 @ 55 |
| WHEAT—All kinds of White. | 1 00 @ 1 11½ | 1 05 @ 1 16 |
| All kinds of Red and Amber. | 74 @ 1 11 | 82 @ 1 15¼ |
| CORN—Yellow .... ......... | 45 @ 56 | 45 @ 53 |
| " Mixed .... ........... | 42¼ @ 47¾ | 44 @ 46¼ |
| " White................ | 45 @ 52 | 45 @ 51 |
| OATS...................... | 29 @ 37 | 31 @ 37¼ |
| RYE....................... | 56½ @ 62½ | 60 @ 63 |
| BARLEY ................... | 70 @ 1 25 | 70 @ 1 20 |
| HAY—Bale, ℔ 100 lbs......... | 30 @ 80 | 30 @ 80 |
| STRAW, ℔ 100 lbs............. | 25 @ 50 | 30 @ 60 |
| COTTON—Middlings, ℔ lb.... | 9⅜ @ 9¼ | 9¾ @ 9⅜ |
| HOPS—Crop of 1878, ℔ lb ...... | 6 @ 15 | 5 @ 15 |
| " " 1877, ℔ lb ...... | 4 @ 6 | 3 @ 5 |
| " olds, ℔ lb............ | 2 @ 3 | 2 @ 4 |
| FEATHERS—Live Geese, ℔ lb | 32½ @ 47½ | 30 @ 45 |
| SEED—Clover, West. & St. ℔ lb | 6¼ @ 7¾ | 6 @ 7¼ |
| " Timothy, ℔ bushel... .. | 1 20 @ 1 30 | 1 30 @ 1 50 |
| " Flax, ℔ bushel.......... | 1 42½ @ 1 45 | 1 35 @ 1 40 |
| TOBACCO, Kentucky, &c., ℔ lb. | 2½ @ 12¼ | 2½ @ 12¼ |
| " Seed Leaf, ℔ lb......... | 5 @ 50 | 7 @ 50 |
| WOOL—Domestic Fleece, ℔ lb | 22 @ 40 | 20 @ 38 |
| " Domestic, pulled, ℔ lb .. | 17 @ 36 | 17 @ 35 |
| " California............... | 10 @ 25 | 12 @ 25 |
| TALLOW, ℔ lb ............. | 6½ @ 6¾ | 6⅜ @ 6¾ |
| OIL-CAKE—℔ ton ... ....... | 27 00 @ — | 27 00 @ 28 00 |
| PORK—Mess, ℔ barrel .. .... | 9 00 @ 10 75 | 9 05 @ 10 65 |
| " Extra Prime, ℔ barrel.. | — @ — | — @ — |
| BEEF—Extra mess........ .. | 10 50 @ 11 50 | 10 50 @ 11 50 |
| LARD, in trcs. & bbls, ℔ 100 lb | 6 90 @ 7 25 | 6 40 @ 6 85 |
| BUTTER—State, ℔ lb........... | 12 @ 27 | 12 @ 25 |
| " Western, poor to f'cy, lb. | 7 @ 30 | 7 @ 28 |
| CHEESE.. . ........... .. | 3½ @ 9½ | 3 @ 9¼ |
| EGGS—Fresh, ℔ dozen .. .... | 21 @ 23 | 15¼ @ 17¼ |
| POULTRY—Fowls, ℔ lb........ | 8 @ 13 | 8 @ 12 |
| " Chickens, Penn., ℔ lb.... | 9 @ 13¼ | 10 @ 17 |
| Turkeys—℔ lb................. | 10 @ 14 | 10 @ 16 |
| Geese, ℔ pair....... ....... | 1 12 @ 2 00 | 1 00 @ 1 75 |
| " ℔ lb................. .. | 6 @ 10 | — @ — |
| Ducks, ℔ pair............. .... | 50 @ 90 | 45 @ 90 |
| " ℔ lb................... | 9 @ 15 | 10 @ 18 |
| DUCKS, Wild, ℔ pair.......... | 20 @ 1 50 | 15 @ 2 00 |
| GROUSE, ℔ pair................ | 40 @ 60 | — @ — |
| PIGEONS, ℔ doz......... ... | — @ — | 75 @ 3 00 |
| HICKORY NUTS—℔ bush ..... | 1 50 @ 2 00 | 1 50 @ 2 37 |
| APPLES, ℔ barrel.............. | 75 @ 2 50 | 1 00 @ 2 75 |
| ORANGES, ℔ bbl.............. | 3 50 @ 6 00 | 4 00 @ 8 00 |
| " ℔ box........... | — @ — | 1 25 @ 4 00 |
| BEANS—℔ bushel.... ....... | 1 15 @ 2 60 | 1 30 @ 2 40 |
| PEAS—Canada, in bond, ℔ bu | 73 @ 74 | 70 @ 73 |
| " new So., ℔ bushel... | — @ — | 5 00 @ 6 00 |
| POTATOES, ℔ bbl............... | 2 00 @ 3 00 | 2 00 @ 3 25 |
| " new, Bermuda,....... | — @ — | 5 50 @ 7 00 |
| " Sweet, ℔ bbl....... | 2 00 @ 2 50 | 2 00 @ 2 37¼ |
| TURNIPS ℔ bbl................ | 75 @ 1 00 | 87½ @ 1 25 |
| TOMATOES, new, ℔ small box. | — @ — | 25 @ 65 |
| RADISHES, new So. ℔ 100 bun | — @ — | 1 75 @ 2 50 |
| BROOM-CORN ................ | 2 @ 5½ | 2 @ 5¼ |
| CABBAGES—℔ 100 ............ | 3 00 @ 6 00 | 4 00 @ 8 00 |
| SPINACH, So., ℔ bbl.......... | — @ — | 2 75 @ 3 50 |
| ONIONS—℔ bbl....... ....... | 2 00 @ 3 50 | 2 50 @ 5 50 |
| CELERY, per dozen.......... | 50 @ 78¼ | 65 @ 1 00 |

More activity has been noted in the Money Market, and loan and discount rates have been ruling higher, as business requirements have been increasing in volume and urgency, with the revival of the Spring trade. Cable advices have been of a more favorable tenor, in relation to Breadstuffs, but not otherwise encouraging to shippers of American produce. Western markets have been very variable, particularly for Grain, and Hog products, chiefly under speculative influences, which led to more or less serious disturbances of values—notably so in the instance of Spring Wheat in the Chicago market, where on Friday, March 7, a fall occurred of fully 5 cts. a bushel, on a decided pressure to place supplies, mainly, as reported, on orders from New York to sell, the most important of

which, as affecting the large stock then controlled by a prominent speculative operator, have heen represeuted as forgeries, thus occasioning much excitement and discussion. Receipts of Produce at the seaboard have been of greater magnitude, and have tended to weaken prices. ....Breadstuffs have been quite active here, especially Wheat, which has heen very freely dealt in, for prompt and future delivery,—for prompt delivery, in good part, for export, and for future delivery, almost wholiy on speculative account, and Winter grades attracting most attention. Prices of Wheat, which were on the advance, early in the month under review, reacted sharply toward the close, and left off heavily. Corn has been in fair request for early delivery. and also freely purchased for future delivery, on, however, an unsettled market, closing depressed and declining, the offerings gaining on the demand, and holders showing more eagerness to realize. Rye has been taken to an important aggregate for export at stronger rates, but wound up in favor of buyers. Barley has been rather more sought after, closing with more steadiness. Oats have fluctuated widely, on a comparatively brisk trade, in good part speculative. Flour has been irregular, closing heavily, on accumulating supplies, and freer offerings for future delivery....Provisions have beeu more or less seriously disturbed, through speculative action, and in the line of hog products, fell off in values toward the close. on a restricted movement. Butter and Cheese in fair request, the former, however, at reduced quotations. Eggs, lower, but at the current rates, meeting with a readier sale... Hops declined, and the market closed for other than the better qualities weak, on a moderate call for supplies....Wool has been in fair demand at about steady prices, in most instances. ... Seeds have been irregular, and, at the close, dull. Of the dealings of the month the most important was a sale of 8,000 bushels rough Flour at $1.35 per bushel....Tobacco ruled about steady, on a somewhat better inquiry, partly for shipment....Ocean freights fairly active, particularly for Grain, but left off easier.

### New York Live-Stock Markets.

RECEIPTS.

| WEEK ENDING | *Beeves.* | *Cows.* | *Calves.* | *Sheep.* | *Swine.* |
|---|---|---|---|---|---|
| Feb. 11 | 8,467 | 105 | 1,031 | 26,850 | 36,931 |
| Feb. 18 | 10,730 | 110 | 1,029 | 25,919 | 39,327 |
| Feb. 25 | 10,799 | 84 | 1,010 | 20,628 | 39,809 |
| Mar. 4 | 8,821 | 45 | 1.127 | 20,066 | 27,112 |
| Mar. 11 | 9,462 | 105 | 1,314 | 22,531 | 26,514 |
| *Total for* 5 *Weeks* | 48,279 | 450 | 5,511 | 115,997 | 169,723 |
| do. *for prev.* 4 *Weeks* | 40,591 | 773 | 3,463 | 90,896 | 146,482 |
| | *Beeves.* | *Cows.* | *Calves.* | *Sheep.* | *Swine.* |
| *Average per Week* | 9,656 | 90 | 1,602 | 23,199 | 33,944 |
| do. do. *last Month* | 10,148 | 193 | 866 | 22,724 | 36,620 |
| do do. *prev's Month* | 10,093 | 122 | 1,111 | 21,986 | 43,891 |

The prices for the past five weeks were as follows:

| WEEK ENDING | *Range.* | *Larger Sales.* | *Aver.* |
|---|---|---|---|
| Feb 11 | 7½@11 c. | 8 @10¾c. | 9½c. |
| Feb. 18 | 7 @11 c. | 8½@ 9¾c. | 9¼c. |
| Feb. 25 | 7½@11 c. | 8¾@ 9¾c. | 9 c. |
| Mar. 4 | 7½@11¼c. | 8¾@ 9¾c. | 9 c. |
| Mar. 11 | 7¼@11 c | 8¼@ 9½c. | 8½c. |

**Beeves.**—The market for heef has been dull, and prices have shrunk gradually for the past five weeks. The supply has heen heavy and the demand light, and the result as might have heen expected. The large receipts of dressed heef may have had some effect, as prices for choice sides brought only 7@7½c. ℔ lb. while city sides were offered at 8@8½c. At the close of our report the market was dull with lower prices, the sales being 7½c. ℔ lb for Cherokees of 55 lhs. to the 100, 8c. ℔ lb for rough steers of 55 to 56 lhs.; 9½c. ℔ lb for good natives of 56 lhs. to the 100, and 9¾@10½c. for prime to extra of 57 lbs. to the 100.

**Cows.**—Arrivals are light, and business has been still lighter. The excitement about pluero-pneumonia in the city stables has stopped husiness in a measure. Quotations are $30@$60 per head, according to quality.

**Calves.**—A gradual weakening of the market for calves has been noticed, the supply having heen too liberal, especially of live calves. Prices rule at the close of this report at 5½@7½c. ℔ lb for live; ordinary dressed calves hring 8@8½c., and the hest Jersey hog-dressed 10c. ℔ lb....**Sheep.**—A better feeling marked the closing business of the month, and prices were advanced fully ½c. ℔ lb. Fair sheep sold for 5@5½c. ℔ lb live weight; prime sheep sold at 5¾@6c. ℔ lb, the latter price for sheep fit for export; choice wethers exceeded the latter price a fraction. Lamhs ranged from 5¾@6½c. ℔ lb.... **Swine.**—There is no change to notice in hogs, the market has ruled steady and prices close at 4½ to 4½c. ℔ lb for live, and 5@5½c. ℔ lb for city dressed; pigs hrought 5½c , and Jerseys reached 6½c. ℔ lb.

**Horse Market.**—The tendency of the horse market shows that the hreeding of first class driving and carriage horses has not yet been overdone; the enquiry heing wholly confined to this class. The feeding of a horse that will hring $1000, costs little more than a "plug," which will bring only $100, the difference heing chiefly profit or payment for enterprise and skill. The trade in work horses is dull, and prices unchanged. The present out-look is promising for export trade. and there is a demand for some fine driving teams, worth $1000 and upwards. In the horse market as in other husiness, there is plenty of room at the top, while there is a crowd below,

### Prices of Feed.

| | |
|---|---|
| Bran, per ton | $16.00@$18.00 |
| Middlings, per ton | 19.00@ 20.00 |
| Ground Feed, per ton | 21.00@ 23.00 |
| Linseed-oil-cake, western, per ton | 35.00@ 40.00 |
| Cotton-seed-cake, per ton | 25.00@ — |
| Chandler's Scraps, per lb | 2@ 3 |

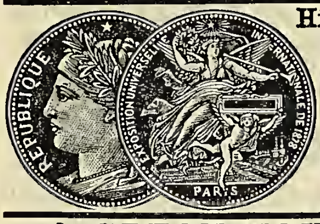
### Prices of Fertilizers.

| | |
|---|---|
| Nitrate of Potash (95 per cent.), per lb. | 9 @9½c. |
| Sulphate of Potash (potash 44 per cent) per lb. | 3 @3¼c. |
| do. do. (potash 27½ per cent) per lb. | 1½@1¾c. |
| German Potash Salts (potash 12 to 15 p. c. p. ton. | $15.00@18.00 |
| Muriate of Potash (potash 50 per cent), per lb | 1¾@2 c. |
| Nitrate of Soda, per lb | 3¾c.@4¼c |
| Sulphate of Ammonia (25 per cent.), per lb | 4½c.@4¾c. |
| Dried Blood (ammonia 13 per cent) per ton | $40.00@45.00 |
| No. 1, Peruv. Guano 10 p. ct. ammonia, standard, ℔ ton | $56.50 |
| do. do. Lobos, do. do. do. | 47.50 |
| do. do guaranteed, ℔ ton, cargo J | 56.00 |
| do do. rectified, per ton, 10.20 p. c. | 69.00 |
| do. do. do. do. 3.40 p. c. | 51.00 |
| Soluble Pacific Guano, ℔ ton | 45.00 |
| Excelsior Fertilizer Works, Fine Ground Raw Bone | 55.00 |
| Mapes' Complete Manure (clay soils) per 1,000 lbs | 25.00 |
| do. do. do. (light soils) per 1,000 lbs | 25.00 |
| do. Grass and Grain Top-dressing, ℔ 1,000 lbs | 25.00 |
| do. Fruit and Vine Manure, do. | 17.50 |
| do. Bone, strictly pure, meal ....per ton | 42.00 |
| do. do. do. medium ...... do. | 36.00 |
| do. do. do. dissolved..... do. | 42.00 |
| do. Potato Manure ....per 1,000 lbs | 22.50 |
| do. Corn do. ....per 1,000 lbs | 23.75 |
| Stockbridge Corn Manure, per acre | 20.00 |
| " Potato do do | 10.00 |
| " Tobacco do do | 50.00 |
| " Rye do do | 10.00 |
| " Wheat do do | 15.00 |
| Bowker's Hill and Drill Fertilizer, per ton | 45.00 |
| Baugh's Raw Bone Phosphate, per ton | 33.00 |
| Baugh's Manure for Tobacco and Grain, per ton | 45.00 |
| Walton Whann & Co.'s Raw Bone Phosphate | 40.00 |
| Gypsum, Nova Seotia, ground, per ton | 8.00 |

**A Patent for Improvements in Salt-Making** has been granted by the English Government to the mannfacturers of **Higgin's Eureka Salt.** For many years the Ashton's brand has been considered the best for dairy purposes, but now comes a new hrand, which, although costing more to make, is sold at about the same price of Ashtou's, and is of greatly superior quality.

The present is an age of progress; the locomotive has superseded the stage-coach, refined sugar has taken the place of raw sugar, new process flour, that made by the old process; and salt is no exception to the general march of improvement, as the result of Mr. Higgiu's process shows.

H. K. & F. B. Thurber & Co., New York, the importers have, for the purpose of inducing all dairymen to try this salt, offered a set of magnificent medals (gold, silver, and bronze), in each of the Dairy States, for the 2nd and 3d best butter salted with this salt during the present year. The same offer is also extended to cheese-makers. Most of the fine creameries are now using this salt, and competent judges think that it will materially aid in improving the standard of American dairy products. For further information regarding medals, address the Secretary of your State Agricultural Fair, aud for the Salt apply to any of the leading salt dealers.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Make the best roof in the world. Superior to Tin. Cheaper than Slate, and less than ¼ the weight. Can not Crack. Fire Proof. Can be put on by any Carpenter. 75 per cent saved in freight, with no breakage in carriage or putting on. ☞ Will last a life-time. *Gold Medal awarded at Paris Exposition*, 1878. Send for full description and prices to the

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**GOLDING HOP ROOTS.**

A new English variety, highly esteemed among the hop-growers of Kent and other portions of Great Britain. Large, productive, and of fine quality. A great improvement on any variety hitherto offered. We recommend this variety, with the greatest confidence, to all hop-growers. By mail, post-paid, each, 25 cents; doz., $2.25; hundred, $15.00, at purchasers' expense. Address

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**Forest Rose Strawberry Plants**

At **$1** per 100; **$8** per 1,000. Also the leading and new varieties of **Strawberry, Blackberry,** and **Raspberry** Plants, including **"Gregg"** in large supply, Japan, Persimmon, Japan Maple. Send for price-list of

**GENERAL NURSERY STOCK**

and small fruit. LEO WELTZ, Wilmington, O.

**Evergreens, Forest Trees, Very Large Stock, All NURSERY-GROWN, Evergreen Seeds, Hardy Catalpa Seeds, R. Douglas & Sons, Waukegan, Ill.**

**THE "GLENDALE" STRAWBERRY.**—Very large, beautiful, vigorous, hardy, and productive; and altogether unequalled for lateness and shipping qualities. Price, pre-paid, 12 plants, 75c.; 50, $2.00; 100, $3.00; 1,000, $25.00. M. CRAWFORD, Cuyahoga Falls, O.

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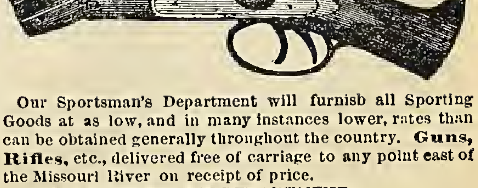

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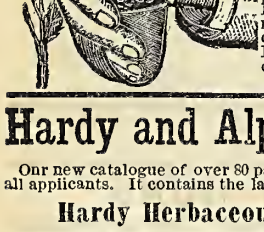

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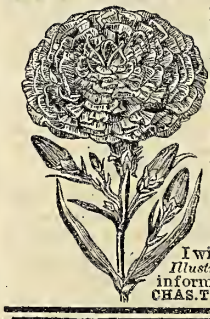

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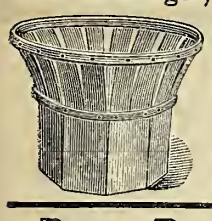

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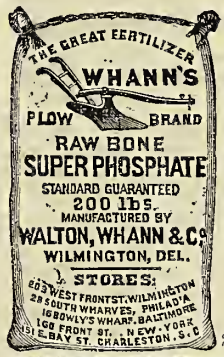


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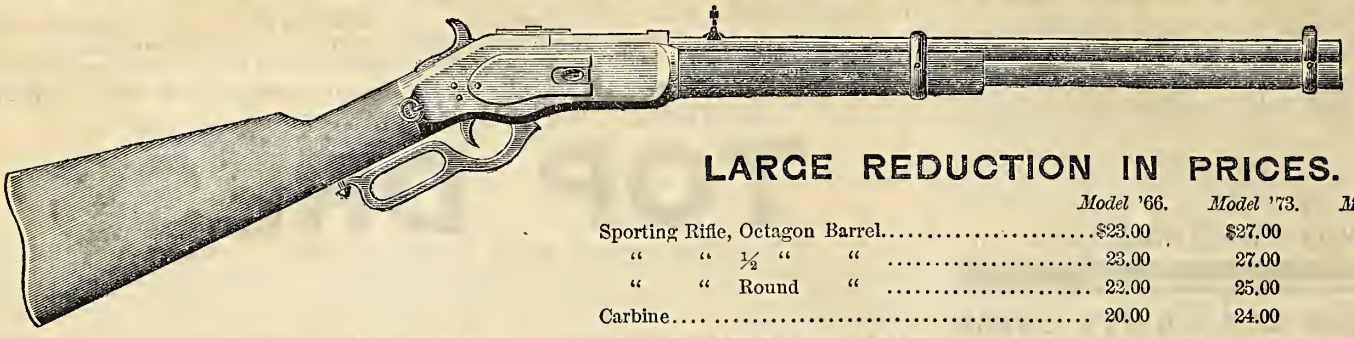

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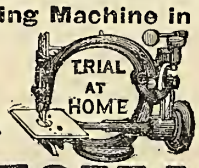


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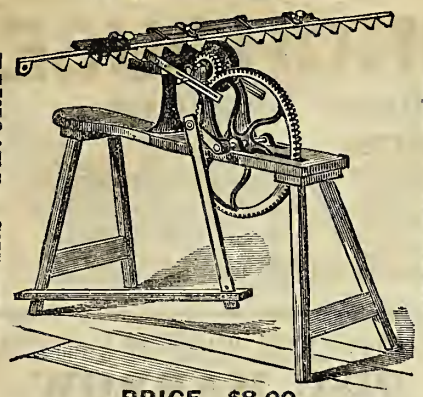


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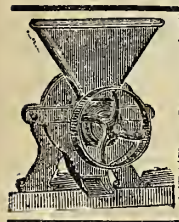

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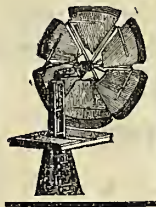

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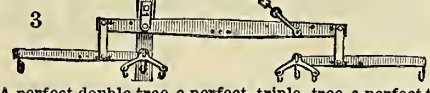


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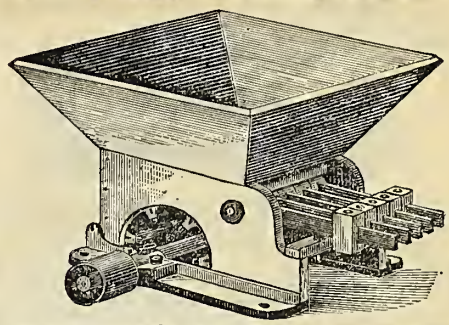

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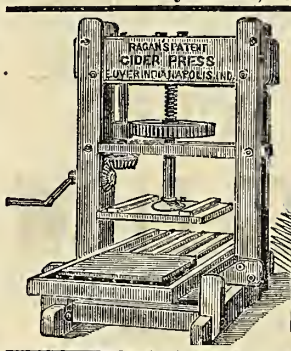


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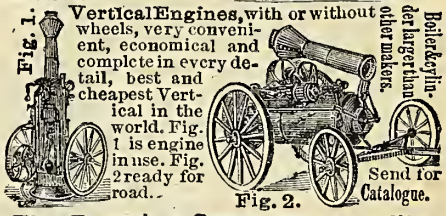


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Fig. 2.

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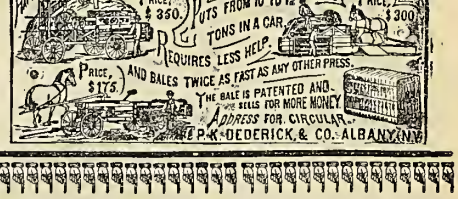


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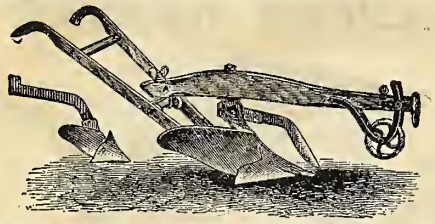

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They are more profitable for a farmer to use than either steel or soft cast iron. We will deliver anywhere east of Mississippi a two-horse plow, complete, and extras, for $16.

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## The Gale Chilled Plow

is the *best plow in the world* and was awarded the **Gold Medal** at Paris Exposition, **187 Other Plows** competing. For circulars, apply to

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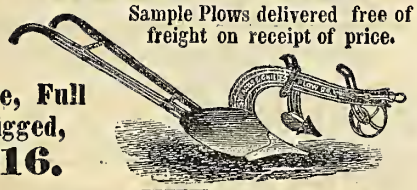
# SYRACUSE CHILLED PLOW



Sample Plows delivered free of freight on receipt of price.

**Price, Full Rigged, $16.**

**THE**

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have enlarged the capacity of their works *three-fold*, in order to supply the demand for the year 1879.

**THEY MAKE THE**

**BEST CHILLED PLOW**

**THE WORLD HAS EVER SEEN.**

IT IS LIGHTER OF DRAFT.
IT IS MORE PERFECT IN SHAPE.
IT IS MORE DURABLE.
IT CLEANS IN EVERY SOIL WHERE OTHER PLOWS FAIL.
NO PLOW SO WELL PREPARES THE SOIL FOR A CROP.
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IT IS MADE IN DIFFERENT STYLES—ONE-HORSE, TWO-HORSE, OR THREE-HORSE.

**Every Plow is Guaranteed under the Seal of the Company.**

**BEWARE OF COUNTERFEITS.**

The reputation of the Syracuse Chilled Plow has induced unprincipled manufacturers to palm off on the farmers plows that they call *chilled*, which are, in fact, nothing but common plows, with the word "chilled" painted or branded thereon.

The SYRACUSE CHILLED PLOW has been made but two years and a half, and in that time

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No other new style of Plow ever sold over Six Thousand in the same length of time.

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**This Plow** contains the most remarkable improvements ever made in Swivel Plows. It is easy to handle, with **Shifting Handles,** which enables the operator to walk with both feet in the furrow. Light to draw, firm, strong, and durable. Constructed of patent Hard Metal, which is as strong and will scour equal to steel. We also make it of charcoal iron, at a less price. THE BELCHER & TAYLOR AG'L TOOL CO., Chicopee Falls, Mass.

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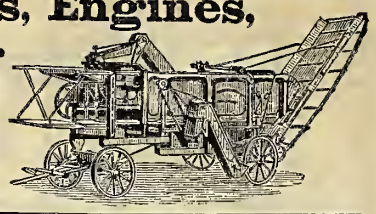

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# Dexter Spring.

**The EASIEST, CHEAPEST and MOST DURABLE CARRIAGE SPRING IN USE.**

If there is no agent or dealer in your neighborhood, we will send complete set of Springs to you direct, at a very low price *for cash*. Every Spring fully warranted to be as represented. Full particulars, Circulars, &c., furnished free. Address **DEXTER SPRING CO., Hulton, Pa.**

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**PULLIAM'S PATENT**

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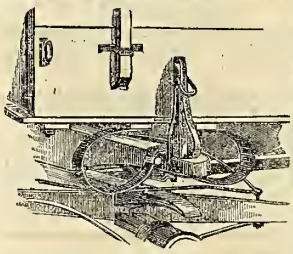

This new and valuable device is suited to wagons of any size—made of the best steel and warranted—are attached by four bolts through the bed—can be put on by any person. They remain on the wagon for all uses, and work equally well whether with empty or loaded wagon. There is no use for a spring seat—they make a comfortable spring wagon out of a farm wagon—and save largely in wear and tear. We Want Agents Everywhere.

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## The FEARLESS.

Stands unequaled for ease of team, the Horse-Power runs, as shown by the records, with **more than one-third less friction** than any other. The only machine awarded a

## CENTENNIAL MEDAL

on both Horse-Power and Thresher and Cleaner, at the Centennial Exhibition, as shown by Official Report, which says: **"For special features in the Power to secure light running and minimum friction. For the ingenious form of the Straw Shakers, which insure the proper agitation to separate the grain from the straw."** For Catalogue, Price-List, and full report of trial, address

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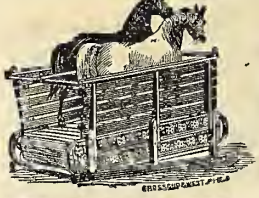
**AND PREMIUM THRESHER.**



This very superior power produces much more power with far

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than other railway powers. Send for descriptive circular.

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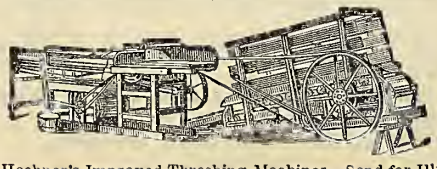
Awarded a MEDAL and DIPLOMA OF HONOR, at the International Exposition.

**HEEBNER'S IMPROVED**

***Level Tread Railway Horse Power and Speed Regulator.***



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Light, Simple, Durable & Flexible.

**Being jointed in the center, is adapted to both smooth and uneven surfaces. Acknowledged the best of the kind, and will pulverize and cover seed better in one operation, than going over twice with others. Made with both Chilled Metal and Cast Steel Discs polished. Send for circular and price list. Manufactured by**

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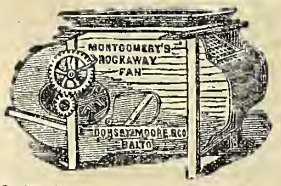


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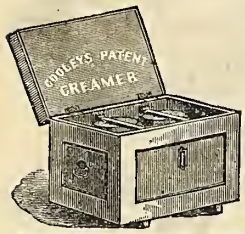


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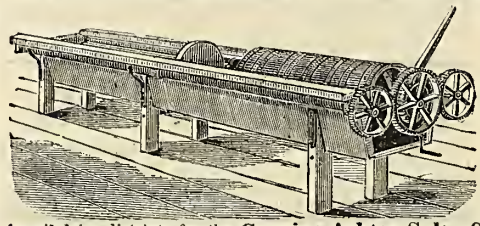

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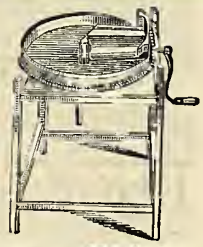

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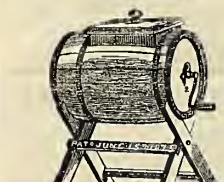

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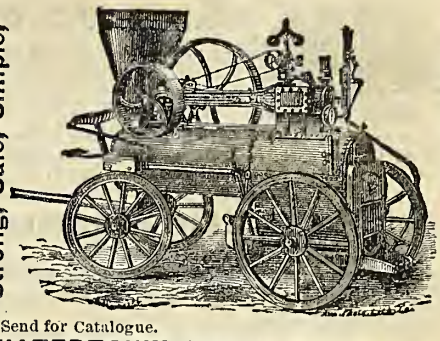

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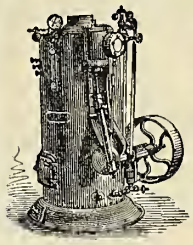

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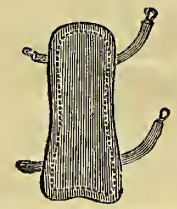

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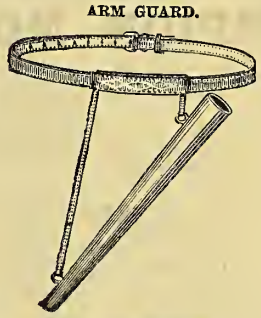

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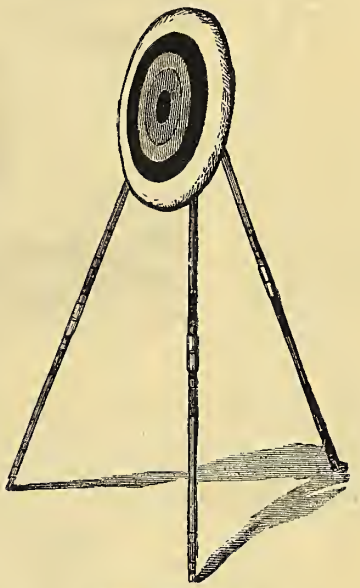

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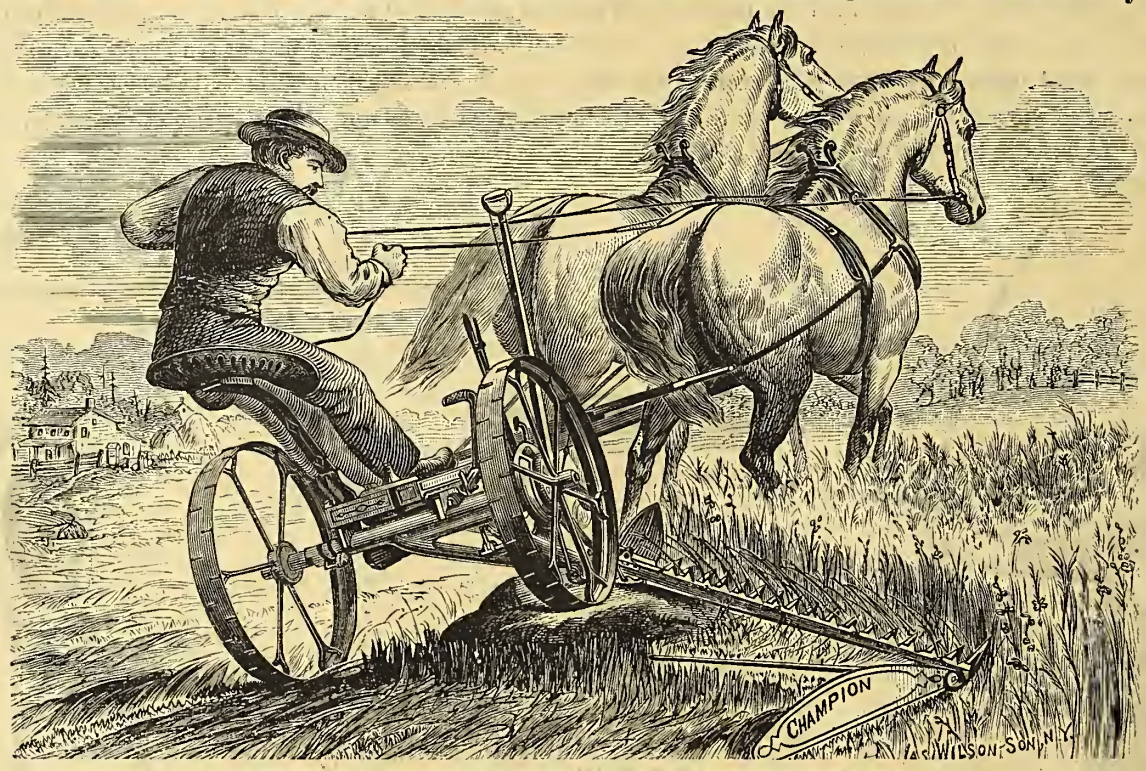


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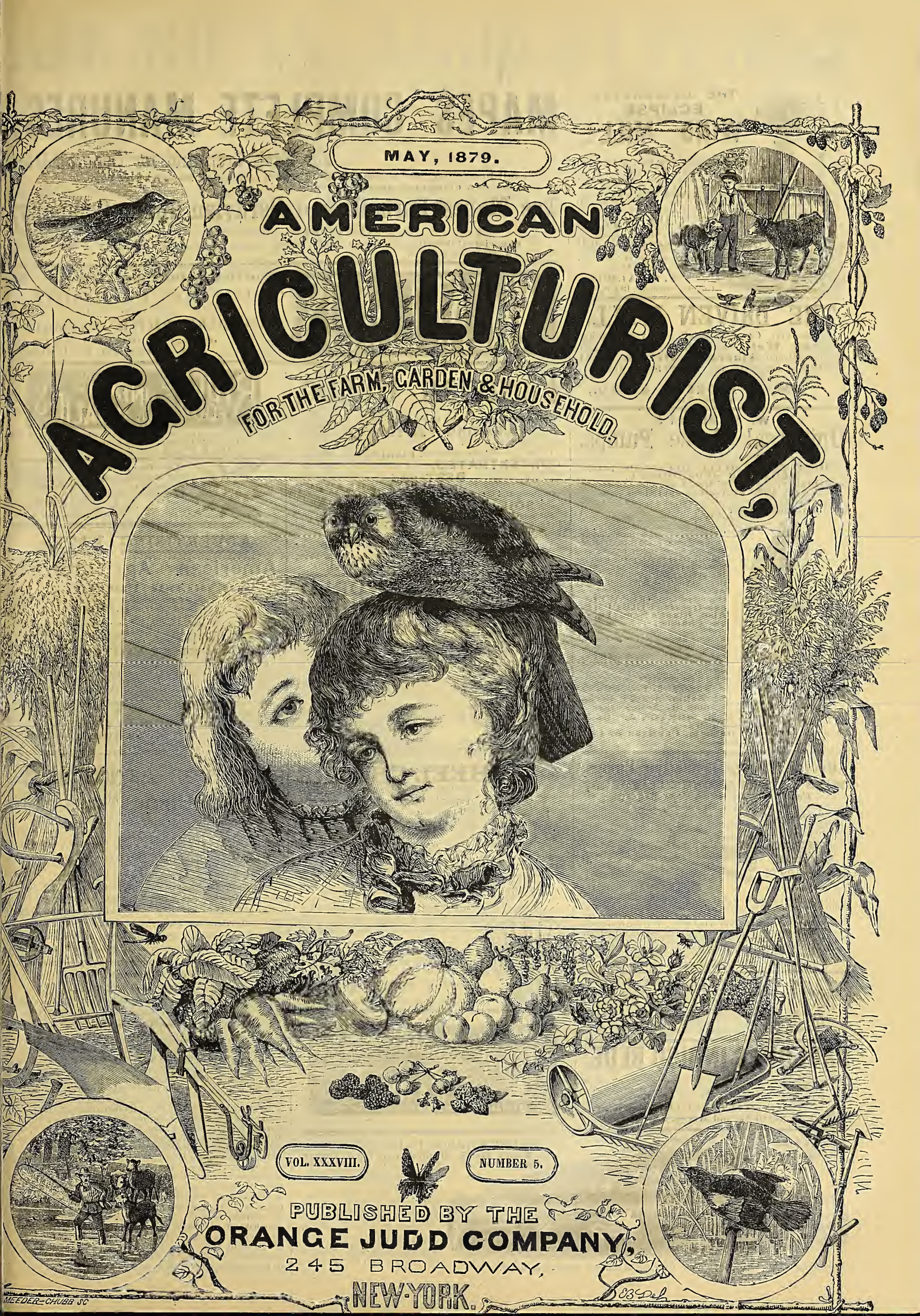
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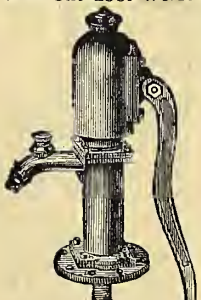

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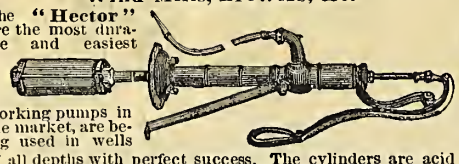

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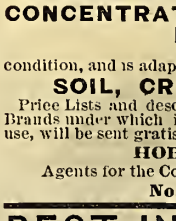

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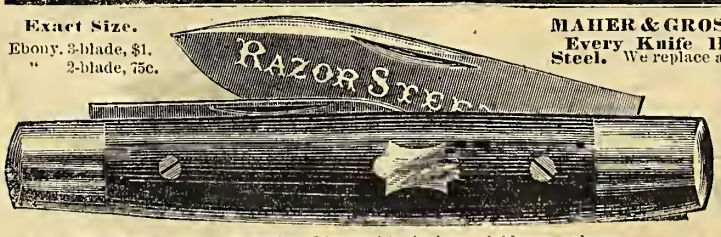


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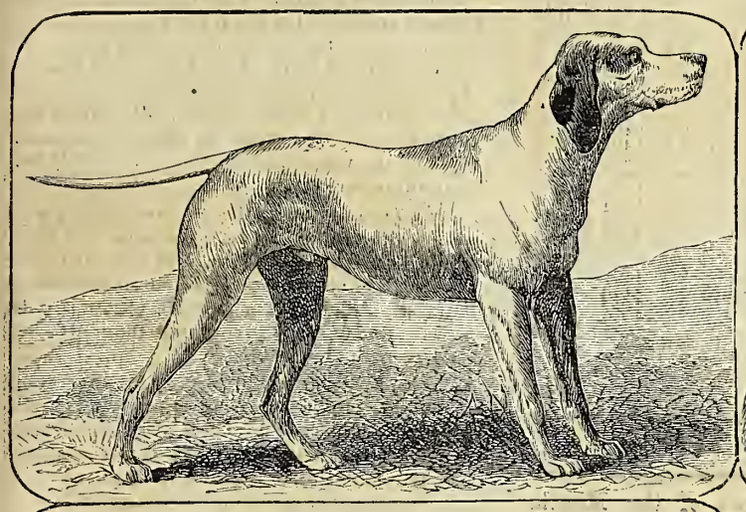

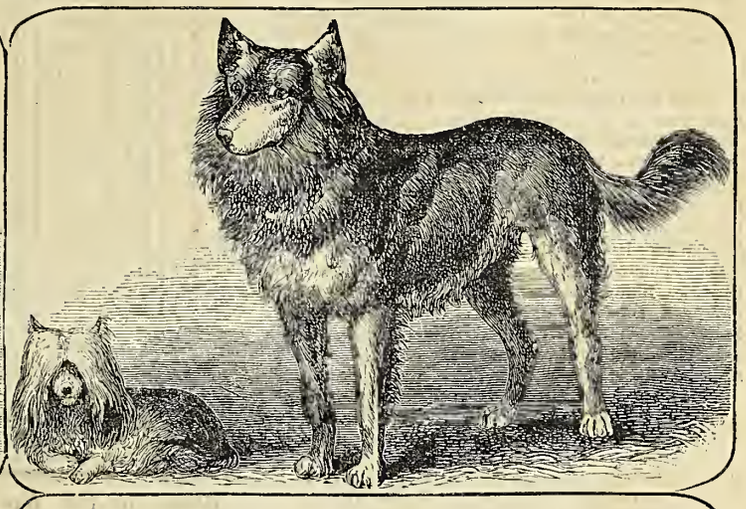

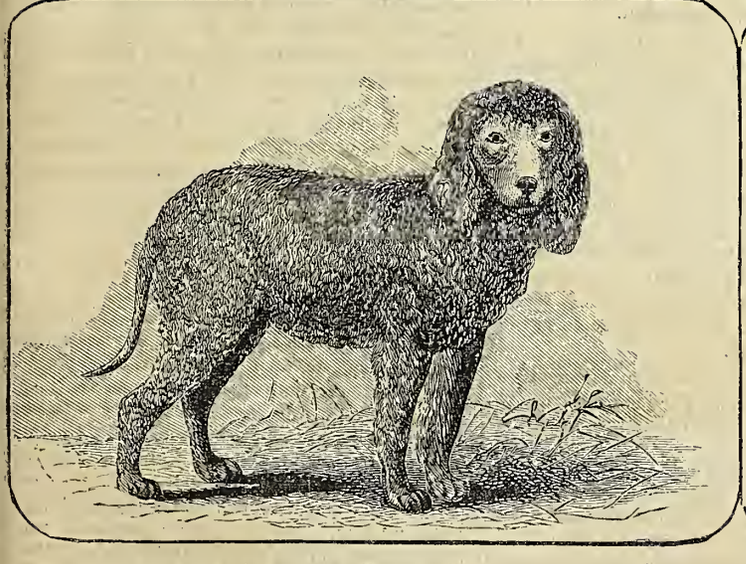

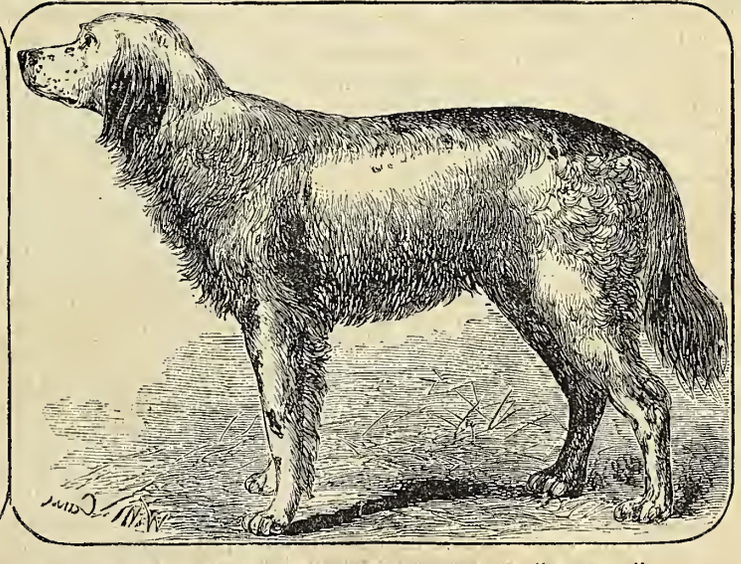

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**Bees-Wax.**—"J. S.," Pa. Wax is a secretion of the bee. If you examine bees at the time they are building comb, you will see beneath the rings on the under side of the abdomen of the bees minute scales of wax. In view of the large consumption of honey required to produce wax, bee-keepers aid the bees by supplying them with "Comb Foundation." This, which is one of the great inventions of modern bee-keeping, is described in this month's "Bee Notes."

## Calendar for May, 1879.

| Day of Month. | Day of Week. | Boston, N. England, N. York State, Michigan, Wisconsin, Iowa, and Oregon. Sun rises. | Sun sets. | Moon sets. | N. Y. City, Ct., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois. Sun rises. | Sun sets. | Moon sets. | Washington, Maryland, Virginia, Kentucky, Missouri, and California. Sun rises. | Sun sets. | Moon sets. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | H. M. | H. M. | H. M. | H. M. | H. M. | H. M. | H. M. | H. M. | H. M. |
| 1 | T. | 4 55 | 6 59 | 2 5 | 4 58 | 6 56 | 2 4 | 5 2 | 6 52 | 2 2 |
| 2 | F. | 4 53 | 7 0 | 2 30 | 4 57 | 6 57 | 2 30 | 5 1 | 6 53 | 2 30 |
| 3 | S | 4 52 | 7 1 | 3 1 | 4 56 | 6 58 | 2 57 | 4 59 | 6 54 | 2 59 |
| 4 | S | 4 51 | 7 3 | 3 23 | 4 54 | 6 59 | 3 26 | 4 58 | 6 55 | 3 39 |
| 5 | M | 4 49 | 7 4 | rises | 4 53 | 7 0 | rises | 4 57 | 6 56 | rises |
| 6 | T | 4 48 | 7 5 | 8 14 | 4 52 | 7 1 | 8 8 | 4 56 | 6 57 | 8 2 |
| 7 | W | 4 47 | 7 6 | 9 29 | 4 51 | 7 2 | 9 22 | 4 55 | 6 58 | 9 16 |
| 8 | T | 4 46 | 7 7 | 10 32 | 4 50 | 7 3 | 10 26 | 4 54 | 6 59 | 10 20 |
| 9 | F | 4 45 | 7 8 | 11 23 | 4 49 | 7 4 | 11 18 | 4 53 | 7 0 | 11 12 |
| 10 | S | 4 43 | 7 9 | morn | 4 48 | 7 5 | 11 59 | 4 52 | 7 1 | 11 54 |
| 11 | S | 4 42 | 7 10 | 0 3 | 4 47 | 7 6 | morn | 4 51 | 7 2 | morn |
| 12 | M | 4 41 | 7 11 | 0 35 | 4 46 | 7 7 | 0 32 | 4 50 | 7 3 | 0 28 |
| 13 | T | 4 40 | 7 12 | 1 1 | 4 44 | 7 8 | 0 59 | 4 49 | 7 3 | 0 57 |
| 14 | W | 4 39 | 7 13 | 1 24 | 4 43 | 7 9 | 1 23 | 4 48 | 7 4 | 1 22 |
| 15 | T | 4 38 | 7 14 | 1 45 | 4 42 | 7 10 | 1 45 | 4 47 | 7 5 | 1 45 |
| 16 | F | 4 37 | 7 15 | 2 5 | 4 42 | 7 11 | 2 7 | 4 46 | 7 6 | 2 8 |
| 17 | S | 4 36 | 7 16 | 2 26 | 4 41 | 7 12 | 2 29 | 4 45 | 7 7 | 2 31 |
| 18 | S | 4 35 | 7 17 | 2 49 | 4 40 | 7 13 | 2 52 | 4 44 | 7 8 | 2 56 |
| 19 | M | 4 34 | 7 18 | 3 15 | 4 39 | 7 14 | 3 19 | 4 44 | 7 9 | 3 24 |
| 20 | T | 4 33 | 7 19 | sets | 4 38 | 7 15 | sets | 4 43 | 7 10 | sets |
| 21 | W | 4 33 | 7 20 | 8 14 | 4 37 | 7 16 | 8 8 | 4 42 | 7 11 | 8 2 |
| 22 | T | 4 32 | 7 21 | 9 8 | 4 37 | 7 16 | 9 2 | 4 42 | 7 11 | 8 55 |
| 23 | F | 4 31 | 7 22 | 9 56 | 4 36 | 7 17 | 9 50 | 4 41 | 7 12 | 9 44 |
| 24 | S | 4 30 | 7 23 | 10 37 | 4 35 | 7 18 | 10 31 | 4 40 | 7 13 | 10 26 |
| 25 | S | 4 29 | 7 24 | 11 11 | 4 35 | 7 19 | 11 7 | 4 40 | 7 14 | 11 3 |
| 26 | M | 4 28 | 7 25 | 11 41 | 4 34 | 7 20 | 11 38 | 4 39 | 7 15 | 11 35 |
| 27 | T | 4 28 | 7 26 | morn | 4 33 | 7 21 | morn | 4 38 | 7 15 | morn |
| 28 | W | 4 27 | 7 27 | 0 6 | 4 33 | 7 21 | 0 6 | 4 38 | 7 16 | 0 3 |
| 29 | T | 4 27 | 7 27 | 0 31 | 4 32 | 7 22 | 0 31 | 4 37 | 7 17 | 0 31 |
| 30 | F | 4 26 | 7 28 | 0 56 | 4 32 | 7 23 | 0 57 | 4 37 | 7 18 | 0 58 |
| 31 | S | 4 26 | 7 29 | 1 22 | 4 31 | 7 24 | 1 24 | 4 37 | 7 18 | 1 26 |

PHASES OF THE MOON.

| MOON. | | BOSTON. | N. YORK. | WASH'N. | CHA'STON | CHICAGO. |
|---|---|---|---|---|---|---|
| | D. | H. M. | H. M. | H. M. | H. M. | H. M. |
| Full M'n | 6 | 1 28 mo. | 1 16 mo. | 1 4 mo | 0 52 mo. | 0 22 mo. |
| 3d Quart. | 12 | 9 52 ev. | 9 40 ev. | 9 28 ev. | 9 16 ev. | 8 46 ev. |
| New M'n | 21 | 1 6 mo. | 0 54 mo. | 0 42 mo | 0 30 mo. | 0 1 mo. |
| 1st Quart | 28 | 6 52 ev. | 6 40 ev. | 6 28 ev. | 6 16 ev. | 5 46 ev. |

## Hints for the Work of the Month.

[*The Hints and Suggestions in these columns are never copied from previous years, but are freshly prepared for every month, from the latest experience and observations, by practical men in each department.*]

*The Corn Crop*, furnishes in May the chief employment of the northern and western farmers. Planting earlier than the first week in this month is scarcely advisable, as a late frost may render it necessary to repeat the work. It is safer to leave the planting until the ground is warm and the weather settled. A crop planted in April, may be in June considerably behind one planted two weeks later.—Several articles on corn will be found in this paper.

*Replanting.*—There is always more or less replanting of corn to be done, because of loss by cut worms, crows, and weak plants. It is well to have a bed made in a warm sheltered place, which may be planted thickly at the same time as the main crop, to provide plants to replace those lost. The vacancies in the field may be filled from this bed by transplanting on a rainy day, or when the ground is wet after a warm rain. It is not generally known that corn may be successfully transplanted.

*Plowing for Corn.*—It is a question whether we could not advantageously let our grass lands remain, rather than plow them up for the corn crop. "A sod for corn," has been the rule hitherto, but circumstances beyond our control, are forcing new conditions upon us. One of these is the necessity for producing more meat, milk, cheese and butter, and less grain than formerly, and for these we need grass or other green crops. Corn is a grand crop and our climate suits it, but the best corn we can grow is not so profitable as roots. Our practice must change as the times change, and it seems probable that we can no longer sacrifice an excellent sod for the corn crop.

*Corn on Stubble.*—A general western practice is to plant corn on stubble land. The increasing use of artificial fertilizers, has shown that we may often ignore rotations, and repeat the same crops when we desire to do so. English farmers are depending less upon "rotation," and our farmers are losing faith in the necessity for it. Experience is showing that we can supply the soil with the elements needed to grow any crop whatever, without regard to its previous condition; and that as good and profitable a crop of corn may be grown upon stubble as upon a sod. The articles in the *American Agriculturist* for April, page 127-'8-'9, may be profitably studied with reference to this.

*Hills or Drills.*—It has been proved that by planting in drills, a larger yield of corn can be produced than from hills. In place of hills 3 ft. apart each way, make drills 3½ feet apart, and drop the seed every 18 inches. In the first case there are 4,840 hills and in the latter 8,400 to the acre. Two stalks may be grown in each hill, or if there are 3 stalks in the former case, there will be 14,520 stalks, and 16,800 in the latter, with one good car to a stalk—which is possible—there will be 145 bushels in the one case, and 168 in the other to the acre. If this is possible, and there is no doubt of it, why should it not be attempted?

*Fertilizing in the Hill.*—A small quantity of active fertilizer applied in the hill at planting will be beneficial. A handful of a mixture of 100 pounds of fine bone dust, 1 barrel of wood ashes and 1 barrel of poultry manure, thrown near but not on the seed and well mingled with the soil, will hasten the young growth. The earlier the start and the more vigorous the young growth, the more rapidly the crop will mature.

*Grass Lands.*—Rolling the meadows with a heavy roller will level the surface by reducing the hummocks, sinking stones and sticks, or roots, and compact the soil about the roots and so strengthen the grass. A light dressing, 100 lbs. nitrate of soda per acre, for instance, will encourage the growth and add largely to the yield.

*Clover Fields* will be benefited by the application of a bushel or two of plaster, as early this month as possible. There is no better place on the farm to put wood ashes than on clover. Circumstances, already referred to, are tending to make clover a more important crop than we have regarded it, as a preparation for wheat and for green feeding. For this use some of the annual varieties may be sown.

*Roots* are the most valuable product we can grow. One acre of mangels or beets may be made to feed 2 or 3 cows for a whole year. This is more than can be done from an acre of any other farm product. To grow mangels successfully, they should be sown this month, before the 20th if possible. After mangels, come sugar beets and blood beets, which may be sown early in June, but are better sown in May. There are several varieties of yellow-fleshed mangels, which are thought more valuable than the red varieties. Webb's Yellow Globe, the Yellow-fleshed Tankard, the Long Yellow, and some other varieties of this color, are already introduced here, and are found to succeed well. They are more solid than the large red varieties.

*Fodder Crops.*—After the April-sown fodder crops, will come the early kinds of Sweet Corn to be cut in June and July, after the clover has been fed off, as a change, or to follow early-sown oats. During May, winter rye will be cut and fed, and meanwhile a portion of the clover should be pushed ahead to follow the rye. Some early varieties of Cabbages, of which the writer finds Fottler's Early Drumhead the best for this purpose on his soil, should be planted out as soon as possible for the cows. A head of this variety, weighing 20 lbs. is a good mid-day lunch for a cow when the grass is failing. As the fodder rye is cut off, in strips through the field, the ground may be plowed and re-sown immediately with Sweet Corn, a second sowing of Oats, or set with Cabbages.

*Insect Pests.*—No quarter should be given to the insect pests which remain year after year simply because we permit them. The Potato Beetle exists so pleutifully, because some careless farmers actually breed myriads of them. Many fields of potatoes were abandoned to them last year, and the neighboring country was thus stocked for this year. This is one insect that might be abolished by a combined effort for a year or two. Another is the cattle Gad-fly, which may be found now in the backs of the cows and oxen in small lumps or tumors, called warbles. The grubs may be squeezed out of these tumors through the breathing holes, and destroyed. Otherwise they will escape, change to flies, and continue the mischief.

*Horses.*—A moderate quantity of green rye will be very acceptable to the horses. It will have a healthful effect, and will cool the system as well as

a dose of medicine. Where there are no stones in the fields, the shoes may be removed from the plow teams for a time, with benefit. Hurry up the work during this month, so that as the mid-day heat increases next month, some leisure may be taken.

*Oxen* as beasts of draft are in some places better than horses. They require different treatment from horses, and especially in the spring, when warm weather opens. Sufficient time should be given for them to feed, and being slow of motion, they should be driven accordingly. In working small farms, oxen will be found more economical than horses, and a pair may be useful on a large farm.

*Cows.*—Now that the cows are fully on the pastures, supply them regularly with salt. One ounce a day is sufficient, and it will prevent possible injurious effect of the fresh succulent food which otherwise might appear in the form of severe and dangerous disorders of the blood. A noon feed of hay with a quart of cotton-seed meal will be useful this month, until the grass becomes less succulent.

*Calves.*—The thriftiest calves should be closely watched when turned to pasture, lest they be attacked with "black quarter." This is the effect of too rank and watery food which impairs digestion. An ounce of Epsom salts may be given with advantage to each calf when turned out, as a precaution against this frequent danger.

*A Change of Food* is to be made cautiously. The stomach and bowels are easily disordered by the sudden and serious change made at this season, and during the first month the substitution of grass or clover for dry food should be gradual. The first symptoms of anything wrong in cows, is a shrinking of the milk, or a loss of appetite.

*Sheep and Lambs.*—Ewes from which lambs have been taken, should be relieved of some of their milk if their udders are full. The flock should be counted twice a day, and carefully examined for anything that may be amiss. Ewes to be fattened may be fed liberally.

*Washing Sheep.*—The practice of washing sheep before shearing is very disagreeable, and is unnecessary. Nothing is gained in the price of the wool—in fact, the usual deduction made by wool buyers for unwashed wool leaves an advantage with the seller. The practice is dangerous to health of both men and sheep, and may well be abolished.

*Dipping the Lambs.*—When the sheep are shorn, the ticks gather on the lambs, and these pests may be destroyed by dipping. Buchan's Cresylic Sheep Dip is a safe and effective preparation for destroying all outward parasites of the sheep, and the Cresylic Ointment is useful to cure accidental cuts made in shearing, and to prevent damage by flies on wounds.

*Poultry.*—Young chicks will thrive best when they are kept dry and clean, and moved frequently to fresh ground. There is no better place for a coop than the garden through which the chicks will wander freely, picking up or driving off many insects. A bed of young cabbages may be kept clear of flea-beetles, and other crops may be preserved in a similar manner, by a few broods of chicks: Provide an abundance of clean water, tight shelter overhead and a dry floor. There will rarely be gapes if this plan is followed.

## Orchard and Garden Work.

Over a large part of the country the custom prevails of making the first of May "moving day," and those who come into new possessions, whether by purchase or by renting, do so at a time inconveniently late for garden and orchard operations. Still, this late beginning is not so disadvantageous as many suppose, especially if one has made his plans in view of it, and has so arranged matters that, when work does begin, he will lose no time in planning and such preliminary matters. One may even plant an orchard or fruit garden in May (this, of course, refers to the Northern States), if he has had the forethought to select and order the trees and plants, and had these heeled-in ready for planting. In the Kitchen Garden there is but little loss from late sowing; the majority of seeds give better results if the sowing is delayed until the ground is well warmed. Therefore, those who must, from necessity, begin their operations this month, need not be discouraged. In well-regulated nurseries, this late demand is provided for; the ordinary trees and shrubs are taken up early in the season, heeled-in, and thus kept dormant.

### Orchard and Nursery.

The earliest work is provided for in the Notes for the last two months. Special attention is called to the directions given last month for the treatment of trees—and it applies as well to shrubs—that have been injured in transportation.

*Grafting* of old trees, while best done just as the buds upon the tree are swelling, may be continued, with proper care, until the trees are in bloom. In late grafting, the bark slips readily, and care is required in cutting off the branches to not make bad wounds. At this time, before sawing off a branch, cut around it with a knife quite through the bark to the wood, and let the saw follow this cut; this will avoid displacing the bark.

*Buds upon the Stock* should be left until it is seen that the graft is in union with it, which will be known by the growing of the buds on the graft, when those on the stock may be rubbed off.

*Treatment of Grafts.*—A cion inserted in an old tree is to be treated like a young tree planted in the ground, so far as shaping it goes. Sometimes a single bud will start and make a long wand-like shoot, without any side branches; this, if left to be whipped about by storms, may break the tender union between stock and cion. When a shoot of this kind is long enough, check it by pinching out the top, to induce it to form branches. So, when all the buds on a cion grow and make a crowded mass, remove a part, or check their growth by pinching.

*Planting in Orchards.*—No questions are more frequent than those that relate to crops in the orchard. There seems to be a reluctance to give up the soil to the trees. Those who do not care enough for an orchard to give the land to it, should not plant one. But there is a time, between the planting of the trees and their coming into bearing, when the soil may be planted with other crops to *the benefit of the trees*, and this should be the first consideration. When an orchard of any kind is properly planted, the trees, when full grown, need *all* the soil, and no crop should be taken from an established orchard. We use the term

*No Crop taken from*, for a crop may be grown in an orchard to its benefit, as when the ground is sown to clover or other crop, to be pastured by swine or sheep, and the roots ultimately plowed under; such cropping will constantly improve the land and benefit the trees. But no crop should be taken from the land in a bearing orchard.

*Young Orchards.*—The trees, at first, can occupy but a small share of the soil with their roots, and the spaces between them must be kept clear of weeds; this may be advantageously done by growing a crop at the same time, provided it is one that leaves the soil in as good condition as at first. In the great peach district, Indian corn is the general crop for young peach orchards. The rows of trees are twenty feet apart, and four rows of corn are put between each two rows of trees, allowing four feet between the rows, and the same distance between the trees and the rows of corn next to them. With the peach, a rapid grower, corn will answer, but

*For Apple Orchards*, the shade would be too great for thorough ripening, and lower growing crops, such as potatoes, squashes, melons, are preferable, especially as these, to be profitable, require a free use of manure and the thorough killing of weeds.

*Insects* will demand attention this month and every other month until vegetation ceases. Much of the success in fruit growing depends upon the close watching and proper combatting of these enemies. Only the leading pests can be mentioned.

*Bark Lice.*—These, especially the Oyster-shell Bark-louse, has much increased lately. If a tree from the nursery is infested, don't plant it, but charge it to the nurseryman. If an infested tree has been planted, pull it up and burn it and plant another. If an established tree shows this pest, paint it over, before the growth begins, with lard oil, or other cheap, not drying, oil. Several have used crude petroleum with success.

*Canker Worms.*—Barriers of tar or printer's ink upon bands of strong paper, put around the trunk, will keep the wingless female from ascending. Where the insects have reached the top, laid eggs, and the "worms" are already at work on the foliage, prevention is useless. Birds will destroy some. Some Western orchardists have found benefit from the use of Paris green—a tablespoonful to a pailful of water, syringed upon the foliage.

*The Tent Caterpillar.*—We have in time advised the destruction of the eggs. The caterpillars, when hatched, keep together and form a web or "tent." As soon as one of these is seen, destroy it in the morning or evening, when the insects are within. A hand, with or without a glove, to remove the tent, and a foot to crush the whole, are all the appliances needed.

*Borers* are not hatched within the tree. The eggs are laid on the bark, and the caterpillars then eat their way in. When within, their presence is shown by sawdust, by gum, by a depression in the bark, all near the root. When discovered, cut out with a knife or probe, or kill with a wire probe.

*Curculio*, especially destructive to the plum, and often so to the peach and other fruits, can *only* be treated by shaking off with a sudden jar, catching on a sheet or some substitute, and killing. If any one offers a curculio preventive, *try* before buying.

*Plant Lice*, often in crowds on the ends of cherry and other twigs, are easily killed by tobacco water.

*Thin the Fruit.*—Really choice fruit can only be had by thinning, and those who grow for market find that it pays. The sooner the thinning is done, after the fruit has fairly set, the better. In most seasons, one-half is too little to remove.

### The Fruit Garden.

The earlier operations are hinted at in the Notes of the last two months. What has been said above, of late planting, applies also here.

*Strawberries* may still be planted, but as preparatory to next year's crop. It is not practicable to get a crop the same season the plants are set. If plants were not covered last fall, the sooner they are mulched the better. Clear up the beds, apply some good fertilizer along the rows, and give a good covering of straw, marsh hay, or other litter; this will both keep the soil moist, and preserve the fruit from contact with the earth.

*Raspberries and Blackberries.*—When new shoots start from the ground, allow only those to grow that are needed for next year's fruiting. Novices need to be reminded that next year's fruit will be borne on stems that have grown this year, and that those which bear fruit this year will die.

*Currants.*—Watch for the eggs of the destructive caterpillar; these are laid on the underside of the lowermost leaves, and if destroyed before they hatch, much future trouble may be prevented. When the worms appear upon the leaves, White Hellebore is an efficient remedy. It may be dusted upon the bushes dry, or by stirring a tablespoonful in a pail of water, and applying with a syringe or garden pump. Two or three applications, at the intervals of a few days, will dispose of them.

*Gooseberries* are attacked by the same insect, and the same treatment should be given them. In most localities, gooseberries are more profitable when marketed green than if ripe. They should be full-grown, but not be at all soft or colored.

*The White Grub*, the larva of the "June or May or Dor-Bug," besides being very destructive elsewhere, often makes sad work with strawberries. Working under-ground, its presence is not known until the mischief is done. When a strawberry plant is found to wilt, take it up; its roots will be found to be eaten off, and it is past remedy. Search for the grub, and find it before it goes to another plant. They generally follow the row.

*Grape Vines.*—It is not too late to plant, if dormant vines can be had, and most dealers retard them by keeping a stock in a cool cellar. It costs

but little to plant a few vines, and the reward will be abundant in a few years. Newly planted vines, whether set last fall or this spring, whether they were one or two years old when planted, should, for the future good of the vine, be allowed to bear but *one single shoot* this year. Probably, when planted, it had two, three, or more buds; all these will start. Rub out all but two, and when the shoots from these two are long enough to tie to a stake, remove one and tie up the other. Two are allowed at first to guard against accidents.

*Training Old Vines.*—Recollect that all the buds now on the vine (or nearly all) will form shoots, and whatever fruit is to be borne will be on the few (three or four) lower joints of these. If there are so many buds that the shoots from them will be crowded, rub them off. Allow no more shoots to grow than can have abundant room to spread their leaves without crowding.

*Layering the Grape.*—If a cane of last year's growth is so situated that it can be brought to the ground and buried, layers can be easily made. Open a trench about six or eight inches deep, and peg such a cane along the bottom of it; when the buds start and make a few inches of growth, put a little earth in the trench, and as these shoots grow, pinch off their lower leaves, and gradually fill the trench. By next fall, each shoot will be well rooted, giving as many vines as there were shoots.

*Marketing Fruit.*—Have baskets and crates in readiness. For the styles of these, consult the dealer to whom the fruit is to be sent. The customs of the different markets vary greatly, and fruit in a package to which consumers are not accustomed, will appear at a disadvantage. Where a market is usually supplied with round baskets, do not introduce square ones, or *vice versa*. The further fruit is to be sent, the more the care required in shipping. An over-ripe berry may spoil a basket, and a spoiled basket hurt the sale of the crate.

*Home Markets.*—It is a mistake to suppose that large cities afford the only profitable markets. Those dealers who pass by flourishing towns and villages to get their fruit to New York, Philadelphia, etc., often make a mistake. As a general thing, small places are poorly supplied with fruit, often having only that which has been sent to the large centers, and from there distributed to them. It will pay to build up a market near home.

## Kitchen and Market Garden.

What has been said on beginning late applies especially to the vegetable garden. A great many come into the possession of their garden plot only on the first of this month, and there are only a few early vegetables that are not as well sown now as earlier. The better condition of the soil, being now dry and warm, will compensate for the lack of early sowing and planting. Those who are obliged to begin their garden now, will find useful hints in previous months. The list of vegetables given in March, page 84, will be a help. Those who have already begun operations, should have in mind

*Succession Crops,* to follow the earliest sowings of peas, spinach, radishes, lettuce, etc.

*Corn Planting Time.*—In the Notes for March last, it was stated that the time at which corn could be safely planted, was a guide for each locality as to the proper time for sowing seeds of tender plants, or for setting out plants of this kind that had been raised under glass. Squashes, melons, and all related vines and other tender plants may be sown, and tomatoes may be set out whenever the farmers find it safe to put in their corn.

*Small Gardens* are often most easily furnished by buying certain plants, such as tomatoes, peppers, early cabbages. Where the number of plants required is small, it is easier to pay some one to supply the neighborhood than it is for each one to be at the trouble to raise the plants for himself.

*Asparagus.*—It should be cut with a strong round-pointed knife, and with care not to injure the dormant buds. If marketed, it should be washed and made into neat bunches. We have figured various bunching machines in former volumes.

*Beans.*—Do not put in the Limas until the long rains are over; thrust them into the soil, eye downwards. Two vines are enough to a pole, but to guard against accidents, put in four or five beans to each; the surplus may be transplanted to fill gaps. Sow a succession of the bush sorts.

*Beets.*—Sow a succession of early, and when the weather is settled, put in Long Blood for winter.

*Cabbages and Cauliflowers.*—Sow the later varieties. The plants of early kinds need frequent hoeing or raking, and this reminds us to repeat that a

*Long-toothed Rake,* one that has sharp teeth and will penetrate the soil, is the best possible implement for killing weeds just before they are visible, and to keep the soil well stirred among the plants.

*Celery.*—Sow in seed-bed; be sure and bring the earth in close contact with the seed by rolling or patting the soil well with the back of the spade. If a dry time comes on, water the seed-bed.

*Sweet Corn.*—Sow the early sorts for the first, and whatever may be the main crop, such as "Triumph," "Excelsior," put in seed every week or so.

*Egg Plant* is perhaps the most thoroughly tropical of all garden plants. Do not set out until really warm weather has set in, and then push with fertilizers, and fight potato bugs.

*Sweet Potatoes,* at the North, should be grown on ridges; put down rows of well-decomposed manure, 36 inches apart; build up over these, with plow and spade, ridges of earth, and plant the "slips" or "sets" on this at 15 inches apart. The first of June is early enough near New York.

*Tomatoes,* in every private garden, should have a trellis of some kind, not only for the sake of better fruit, but for neatness. Whatever will keep the plants up from the ground will answer.

*Odds and Ends.*—Do not forget the hoe figured last month....The general uselessness of garden reels, as now sold, was referred to last month. A friend sends the method of making a serviceable one, which will be found on another page....Apply Paris green to potatoes as soon as up....Sow sweet herbs in a seed-bed for a supply of plants, to occupy the soil when other crops come off.... Thin all thickly-sown crops as soon as they can be handled, while the ground is moist....Dust squashes, melons, and all of that family, as soon as the plants are up, with fine air-slaked lime, or a mixture of plaster and ashes, to keep off insects.

## Flower Garden and Lawn.

*Lawns.*—In making new lawns it is not necessary to sow oats or other grain with the grass seed, unless the work is done very late, and even then we should risk the grass without it, as it fills the soil with large roots, to the detriment of the grass.

*Frequent Mowing* before hot weather sets in, will help thicken the turf, but new lawns should be cut less frequently when drouths come on. If it has not yet been given, the established lawn should have a

*Top Dressing* of some fertilizer, and different from that applied the year before. Guano, ashes, bone, nitrate of soda, or plaster will be useful, and one or the other should be put on each year, using guano at the rate of 200 lbs. to the acre, and others in proportion.

*Large Weeds* in lawns, can only be eradicated by weeding; if the plantains, dandelions, docks, etc., appear, pull them in a moist time, or cut well below the surface with a knife. Annual weeds soon give way to frequent mowing, and die without seeding.

*Bedding Plants* from the greenhouse, should not be put out until settled weather, as cold storms give a check from which they are slow to recover.

*Annuals* may be sown; the labels upon the seed-packets usually state whether the plants will bear transplanting, or must be sown in place.

*Climbers* are useful for shade, for decorating verandas, and for making a screen to hide unsightly objects. Where the woody kinds can not be waited for, annuals may be used with good effect. Canary Vine, Thunbergias, Cobæa, Maurandias and others are all good, and some of the finer Morning Glories, though the flowers are short-lived, are very showy.

*Roses.*—Try White Hellebore for the Rose-slug. Tobacco water will kill plant lice, but for Rose-bugs, nothing short of hand picking persisted in, will abate these pests. Manure roses generously.

## Greenhouse and Window Plants.

The plants that are to go out doors, should have a place where they will be partially shaded, and not be under the drip of trees. A thick layer of coal ashes upon which to stand the pots, will keep worms from working their way into the ball of earth.

*Shading the Roots* is important. When the pots are not plunged, it will be well to arrange boards so as to screen their sides from the hot sun.

*Summer Bloomers,* such as Fuchsias and most Cactuses if not wanted to decorate the verandas, should be kept in the greenhouse.

*Shade* should be provided for the plants that remain in the house. Whitewashing the outside of the glass is the easiest, though a cloth screen, provided with rollers, is sometimes used for shading.

*Plants in the House* need care as to insects, and should not lack proper watering.

*Hanging Baskets* whether in the greenhouse or on verandas, soon dry out, give a thorough soaking, by plunging in a tub of water at least twice a week.

## Not too late for the Experiments.

SUGGESTIONS FOR THOSE MAKING THEM.

The most important number of this journal ever issued during thirty-seven years, was sent out last month. The *Fertilizer Experiments* proposed will be undertaken by a large number of farmers—we would be glad to have it done by not less than ten thousand. The information to be gained will be highly useful to every experimenter himself, to his neighbors, and of great value to the country generally. Negative results obtained will be as instructive as positive ones. It is almost as desirable to know what fertilizers, and what elements in this or that fertilizer, are *not* useful, and will *not* pay, on any particular soils or crops, as to know what will be useful and what will pay. The use of fertilizers obtained outside of the farm, *in addition* to those made on the farm, is already one of the chief means for securing a profitable increase in the products of the soil, in all the older States, and this will soon be the case even in what are now called the newer farm regions.—Just as Providence had bidden beneath the soil the vast stores of coal and oil, to be brought forth when needed, so we begin to find that inexhaustible supplies of fertilizers are coming to light in the earth, where they have existed unknown to man through countless centuries.—But we began this to say that there is

YET PLENTY OF TIME FOR THESE EXPERIMENTS.

Corn planting is not begun in at least two-thirds of the country, and this is an excellent crop for the experiments proposed. Potatoes are still to be planted in Northern regions, and the experiments upon these, and upon field beets and turnips, will be highly instructive also. Every one who has not done so, and can possibly do it, should still secure one of the sets of fertilizers, carefully reading over what was said on pages 128, 129, and 130, last month.

SUGGESTIONS FOR THE EXPERIMENTS.

Some additions to the particulars given last month may be stated. As advised then, the plots should be long and narrow, rather than square, to make up as far as possible for any unevenness in the quality of the soil. For the half-acre and acre plots, we recommended the strips to be 8 and 16 rods long, and one rod wide. (By mistake this was printed on the margin, 8 rods by "2 rods" wide). If they are even longer and narrower, all the better.

Lay out all the plots as accurately as possible, with a tape-line, or a pole marked in feet and inches. Drive strong stakes to mark the boundaries of the plots, and so deeply that they will remain, to distinguish them in coming seasons, as future lessons from this season's experiments will be important.

Read carefully the directions and explanations, and have plans complete and clearly in mind in advance. Select as uniform soil as possible. Level

is best; but, if sloping, let the plots run up and down the slope, so that any wash by rains will not carry the fertilizers from one plot to another. As far as possible, a fair sample of the whole field is desirable, and in a field which is nearest like the majority of the whole farm.

For testing the wants of the *soil* itself, that which is poor or nearly worn out should be selected. Also one not having remaining in it much of previous fertilizers or manures, or of green crops plowed in. We then get the effect of the experimental fertilizers alone upon the natural soil itself.

To test the action of the fertilizers upon a particular crop, soils in better condition may be used. Remember, particularly, to have the fertilizers well mixed with the soil, otherwise they may injure the young plants.

Plant or sow precisely the same number of rows, drills, or hills, on each plot, and see that no shade trees or other circumstances affect one plot different from another.

*One of the most important items is*, to leave plots without any fertilizer, for comparison—to show just what is the effect of each fertilizer or combination of fertilizers as compared with *no* manure. We have advised leaving one such vacant plot on each side. It will be still better to leave one through the middle, or even two interior ones—say the fourth, and the seventh or eighth. It will be instructive, also, to add other plots, and try upon them, severally different farm manures, lime, and other materials at hand.

## Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, from our record kept daily during the year, show at a glance the transactions *for the month ending April 12th*, 1879, and for the corresponding period last year:

**1.** TRANSACTIONS AT THE NEW YORK MARKETS.

| RECEIPTS. | *Flour.* | *Wheat.* | *Corn.* | *Rye.* | *Barley.* | *Oats* |
|---|---|---|---|---|---|---|
| 26 d's *this* m'th | 413,000 | 3,457,000 | 2,916,000 | 314,000 | 207,000 | 811,000 |
| 23 d's *last* m'th | 359,000 | 3,215,000 | 2,119,000 | 97,000 | 226,000 | 409,000 |
| SALES. | *Flour.* | *Wheat.* | *Corn.* | *Rye.* | *Barley.* | *Oats.* |
| 26 d's *this* m'th | 395,000 | 8,431,000* | 5,687,000* | 439,000 | 291,000 | 1,213,000 |
| 23 d's *last* m'th | 378,000 | 8,103,000* | 4,207,000* | 372,000 | 263,000 | 1,093,000 |

* Including sales for forward delivery.

**2.** *Comparison with same period at this time last year.*

| RECEIPTS. | *Flour.* | *Wheat.* | *Corn.* | *Rye.* | *Barley.* | *Oats.* |
|---|---|---|---|---|---|---|
| 26 days 1879 | 413,000 | 3,457,006 | 2,916,000 | 314,000 | 207,000 | 811,000 |
| 27 days 1878 | 271,000 | 3,102,000 | 1,413,000 | 293,000 | 387,000 | 496,000 |
| SALES. | *Flour.* | *Wheat.* | *Corn.* | *Rye.* | *Barley.* | *Oats.* |
| 26 days 1879 | 395,000 | 8,431,000 | 5,687,000 | 439,000 | 291,000 | 1,213,000 |
| 27 days 1878 | 326,000 | 3,491,000 | 3,105,000 | 412,000 | 563,000 | 619,000 |

**3.** *Stock of grain in store at New York.*

| | *Wheat.* bush. | *Corn.* bush. | *Rye.* bush. | *Barley.* bush. | *Oats.* bush. | *Malt.* bush |
|---|---|---|---|---|---|---|
| Apr. 8, 1879 | 2,629,068 | 804,584 | 403,238 | 432,832 | 650,308 | 85,577 |
| Apr. 10, 1878 | 1,370,081 | 541,648 | 106,375 | 396,861 | 857,273 | 253,424 |

**4.** *Exports from New York, Jan. 1, to April 10.*

| | *Flour.* bbls. | *Wheat.* bush. | *Corn.* bush. | *Rye.* bush. | *Barley.* bush. | *Oats.* bush. | *Peas.* bush. |
|---|---|---|---|---|---|---|---|
| 1879 | 824,400 | 10,708,000 | 7,694,500 | 850,700 | 68,700 | 85,200 | 142,850 |
| 1878 | 770,100 | 12,898,746 | 5,232,029 | 974,966 | 1,153,912 | 86,564 | 145,351 |
| 1877 | 373,057 | 2,873,510 | 5,658,140 | 851,280 | 121,229 | 53,125 | 117,060 |
| 1876 | 569,514 | 4,994,177 | 3,668,928 | 43,320 | —— | 63,894 | 258,251 |

Liberal receipts of Produce from the interior, and generally less favorable reports from foreign as well as Western markets—the latter reflecting, in part, the encouraging prospects for the winter-sown crops—have served to depress prices of Breadstuffs during the month, especially toward the close, without stimulating business materially, whether for shipment, home use, or on speculators' account. Winter Wheat left off very heavily, Spring Wheat weak, and Corn, Barley and most grades of Flour also in favor of buyers. Rye comparatively steady, benefited by the requirements of purchasers for the Continent. ..Dealings in Provisions have been more extensive—in Hog products, particularly Lard, of unusual magnitude, at however, variable figures. The speculations in Lard were mainly in connection with the export trade, and chiefly for Germany, quickened by the apprehensions of adverse changes in the tariff of that country. At the close, Pork, Lard and Bacon showed less firmness; Butter and Cheese ruled lower, and not in much request; Beef, steady, but quiet; Eggs, much cheaper.....In Cotton an extraordinarily active movement has been reported, almost wholly in the speculative line, carrying up prices nearly 2 cents per pound, on reports of light arrivals at the shipping ports and reduced crop estimates, the market closing rather buoyantly, though feverish and sensitive....Wool has been yielding slightly in values, on somewhat freer offerings and a moderate call for supplies, the near approach of the season for the new clip tending to lessen the confidence of operators....Seeds have met with much less attention, and have been quoted more or less nominal....Hops have been offered lower, and have been rather difficult to market at even the reduced quotations. Export inquiry light....Hay and Straw weaker in prices, and without much animation in the dealings. ....Tobacco has been in pretty fair demand, within the previous range....Petroleum and Naval Stores more sought after, and quoted higher....Ocean freights have been fairly active, but rates have been ruling very low on nearly all classes, due in good part to the sharp competition of the ocean steam lines for cargo, both of local and through freight. Some improvement in the carrying interest is looked for on the resumption of inland navigation, now near at hand.

CURRENT WHOLESALE PRICES.

| | Mar. 12. | Apr. 12. |
|---|---|---|
| FLOUR—Super to Extra State | $3 35 @ 4 25 | $3 25 @ 4 25 |
| " Super to Extra South'n. | 3 35 @ 6 50 | 3 25 @ 6 50 |
| " Extra Genesee | 4 00 @ 5 75 | 4 25 @ 5 75 |
| " Superfine Western | 3 35 @ 3 75 | 3 25 @ 3 60 |
| " Extra Western | 3 75 @ 9 00 | 3 60 @ 8 75 |
| " " Minnesota | 3 85 @ 8 75 | 3 65 @ 8 50 |
| RYE FLOUR, Superfine | 2 75 @ 3 25 | 2 75 @ 3 25 |
| CORN-MEAL | 2 00 @ 2 70 | 2 00 @ 2 40 |
| OAT MEAL, ⅌ bbl | 3 00 @ 6 00 | 3 00 @ 6 00 |
| WHEAT—All kinds of White | 1 05 @ 1 16 | 95 @ 1 15 |
| " Red and Amber | 82 @ 1 15½ | 95 @ 1 15 |
| " Spring | 78 @ 1 08 | 75 @ 1 05 |
| CORN—Yellow | 45 @ 53 | 44¾@ 52½ |
| " White | 45 @ 51 | 45 @ 52 |
| " Mixed | 44 @ 47 | 43 @ 46½ |
| OATS | 31 @ 37½ | 30 @ 42 |
| RYE | 60 @ 63 | 57 @ 63 |
| BARLEY | 70 @ 1 20 | 50 @ 1 07½ |
| HAY—Bale, ⅌ 100 ℔s | 30 @ 80 | 30 @ 75 |
| STRAW, ⅌ 100 ℔s | 30 @ 60 | 25 @ 55 |
| COTTON—Middlings, ⅌ ℔ | 9¾@ 9⅞ | 11⅜@ 11½ |
| HOPS—Crop of 1878, ⅌ ℔ | 5 @ 15 | 5 @ 13 |
| " " 1877, ⅌ ℔ | 3 @ 5 | 2 @ 4 |
| " olds, ⅌ ℔ | 2 @ 4 | 1 @ 2 |
| FEATHERS—Live Geese, ⅌ ℔ | 30 @ 45 | 30 @ 45 |
| SEED—Clover, West. & St. ⅌ ℔ | 6 @ 7½ | 6 @ 7 |
| " Timothy, ⅌ bushel | 1 30 @ 1 50 | 1 30 @ 1 50 |
| " Flax, ⅌ bushel | 1 35 @ 1 40 | 1 35 @ 1 40 |
| TOBACCO, Kentucky, &c., ⅌ ℔ | 2½@ 12½ | 2½@ 12½ |
| " Seed Leaf, ⅌ ℔ | 7 @ 50 | 7 @ 50 |
| WOOL—Domestic Fleece, ⅌ ℔ | 20 @ 38 | 18 @ 37 |
| " Domestic, pulled, ⅌ ℔ | 17 @ 35 | 16 @ 35 |
| " California | 12 @ 25 | 11 @ 25 |
| TALLOW, ⅌ ℔ | 6⅜@ 6⅝ | 6½@ 6⅝ |
| OIL-CAKE—⅌ ton | 27 00 @28 00 | 27 00 @ — |
| PORK—Mess, ⅌ barrel | 9 05 @10 65 | 9 37½@10 62½ |
| " Extra Prime, ⅌ barrel | — @ — | — @ — |
| BEEF—Extra mess | 10 50 @11 50 | 10 50 @11 50 |
| LARD, in tres. & bbls, ⅌ 100 ℔ | 6 40 @ 6 85 | 6 30 @ 6 87½ |
| BUTTER—State, ⅌ ℔ | 12 @ 25 | 9 @ 20 |
| " Western, poor to f'cy, ℔. | 7 @ 28 | 6 @ 28 |
| CHEESE | 3 @ 9½ | 3 @ 8¾ |
| EGGS—Fresh, ⅌ dozen | 15½@ 17½ | 11½@ 13½ |
| POULTRY—Fowls, ⅌ ℔ | 8 @ 12 | 10 @ 15 |
| " Chickens, ⅌ ℔ | 10 @ 17 | 11 @ 16 |
| " " ⅌ pair | — @ — | 50 @ 1 00 |
| " Roosters, ⅌ ℔ | — @ — | 7 @ 10 |
| Turkeys—⅌ ℔ | 10 @ 16 | 15 @ 20 |
| Geese, ⅌ pair | 1 00 @ 1 75 | 75 @ 2 00 |
| " ⅌ ℔ | — @ — | 5 @ 14 |
| Ducks, ⅌ pair | 45 @ 90 | 50 @ 90 |
| " ⅌ lb | 10 @ 18 | 12 @ 21 |
| DUCKS, Wild, ⅌ pair | 15 @ 2 00 | 20 @ 1 00 |
| SNIPE, per doz | — @ — | 1 25 @ 1 50 |
| PIGEONS, ⅌ doz | 75 @ 3 00 | 1 25 @ 4 50 |
| HICKORY NUTS—⅌ bush | 1 50 @ 2 37 | — @ — |
| APPLES, ⅌ barrel | 1 00 @ 2 75 | 1 00 @ 2 50 |
| ORANGES, ⅌ bbl | 4 00 @ 8 00 | 6 00 @10 00 |
| " ⅌ box | 1 25 @ 4 00 | — @ — |
| STRAWBERRIES, ⅌ quart | — @ — | 25 @ 35 |
| BEANS—⅌ bushel | 1 30 @ 2 40 | 1 15 @ 2 70 |
| PEAS—Canada, in bond, ⅌ bu | 70 @ 73 | — @ 78 |
| " new So., ⅌ crate | 5 00 @ 6 00 | 1 25 @ 4 00 |
| STRING BEANS, new, ⅌ bush. | — @ — | 4 00 @ 4 50 |
| POTATOES, ⅌ bbl | 2 00 @ 3 25 | 2 00 @ 3 37½ |
| " new, | 5 50 @ 7 00 | 9 00 @11 00 |
| " Sweet, ⅌ bbl | 2 00 @ 2 37½ | 3 00 @ 4 00 |
| TURNIPS ⅌ bbl | 87½@ 1 25 | 75 @ 1 25 |
| TOMATOES, new, ⅌ small box. | 25 @ 65 | 1 00 @ 1 25 |
| RADISHES, new So. ⅌ 100 bun | 1 75 @ 2 50 | 1 00 @ 1 50 |
| BROOM-CORN | 2 @ 5½ | 2 @ 5¼ |
| BEETS, new, ⅌ crate | — @ — | 1 50 @ 2 00 |
| ASPARAGUS, new, ⅌ 100 bunc. | — @ — | 6 00 @ 9 00 |
| CABBAGES—⅌ 100 | 4 00 @ 8 00 | 4 00 @ 7 00 |
| SPINACH, So., ⅌ bbl | 2 75 @ 3 50 | 2 00 @ 3 00 |
| ONIONS—⅌ bbl | 2 50 @ 5 50 | 4 00 @ 5 00 |
| CELERY, per dozen | 65 @ 1 00 | — @ — |

### New York Live-Stock Markets.

RECEIPTS.

| WEEK ENDING | *Beeves.* | *Cows.* | *Calves.* | *Sheep.* | *Swine.* |
|---|---|---|---|---|---|
| Mar. 17 | 7,541 | 88 | 1,272 | 19,933 | 30,453 |
| Mar. 24 | 9,204 | 34 | 1,911 | 21,821 | 20,931 |
| Mar. 31 | 9,602 | 115 | 2,300 | 17,904 | 31,369 |
| Apr. 7 | 9,755 | 40 | 2,820 | 21,785 | 34,797 |
| Apr. 14 | 8,148 | 49 | 3,182 | 20,073 | 26,995 |
| *Total for* 5 *Weeks* | 44,250 | 326 | 11,515 | 104,516 | 143,645 |
| do. *for prev.* 5 *Weeks* | 48,279 | 450 | 5,511 | 115,997 | 169,723 |

| | *Beeves.* | *Cows.* | *Calves.* | *Sheep.* | *Swine.* |
|---|---|---|---|---|---|
| *Average per Week* | 8,850 | 65 | 2,303 | 20,903 | 28,729 |
| do. do. *last Month* | 9,656 | 90 | 1,602 | 23,199 | 33,944 |
| do. do. *prev's Month* | 10,143 | 193 | 866 | 22,724 | 36,620 |

The prices for the past five weeks were as follows:

| WEEK ENDING | *Range.* | *Larger Sales.* | *Aver.* |
|---|---|---|---|
| Mar. 17 | 8¼@11 c. | 9 @ 9¾c. | 9¼c. |
| Mar. 24 | 8 @10¾c. | 8¾@10 c. | 9 c. |
| Mar. 31 | 8 @11¼c. | 9 @10¼c. | 9½c. |
| Apr. 7 | 7 @11½c. | 9 @10¼c. | 9½c. |
| Apr. 14 | 7½@11 c. | 9 @10¼c. | 9½c. |

**Beeves.**—The market has been unusually irregular the past month. Constant changes from day to day have occurred which have made business very unsatisfactory. The see-saw action resulting from the depressing influence of the dead-meat trade on the one hand, and the helpful one of the foreign export on the other, has left the market, after its many changes, very nearly where it started, and at the close of our report it remained firm, with a somewhat slow trade. Among the notable sales was one of corn-fed Colorado beeves at 9¾ to 10c. per lb., to dress 56 lbs. to the cwt. 550 head were taken for export on the 1st April, at 10½ to 10¾c. per lb.; good native steers sold at 10¼c. per lb., to dress 57 lbs., and extra cattle brought 10¾ to 11c. per lb. Dressed beef was heavy at 7½ to 8c. per lb ... **Cows.**—There has been a light business in cows at $25 per head for poor, to $60 per head for choice stock.... **Calves.**—A decline of ½ to 1c. per lb. is to be noted in veals. Common to prime closed at 4 to 5½c. per lb., live weight. Hog-dressed were lower, at 5 to 7c. per lb. for New York State, and 6 to 7½c. for New Jersey.... **Sheep and Lambs.**—Prices are lower for this stock, the decline marking ½c. per lb. Clipped sheep sold at the close at 4¾ to 5¼c. per lb., alive; fair to prime wooled sheep were 4¼ to 6½c., and choice wethers brought 6½ to 6¾c. per lb. Spring lambs are selling at $6 per head to 10c. per lb., and dressed mutton at 8 to 9c. per lb.... **Swine.**—Business has ruled dull at 3¾ to 4c. per lb. for Western live hogs; City-dressed were irregular at 5 to 5½c. per lb; and Country-dressed were steady at 6 to 6½c. for light, and 5¼ to 5½c. per lb. for heavy.

**The Horse Market.**—Arrivals have been large, chiefly of small horses from the West. Several car-loads of Canadians, among which were a few fine carriage horses, have come in. The demand has been active, but without advance in prices. The usual spring demand from farmers has begun, and promises to be good at $250 to $275 for fair teams, and $300 and over for choice pairs. Single horses have been taken for city use at $100 to $125 for light, and $225 to $325 for heavy cart horses. The breeding of the latter class of horses promises to be worth the notice of those concerned. A regular trade is now begun in Shetland ponies by Mr. Kirby, 54 Courtland Street, New York, who has received his second consignment of 23 head. The shipment of 500 mules to Africa is also a new feature in this market.

### Prices of Feed.

| | |
|---|---|
| Bran, per ton | $16.00@$18.00 |
| Middlings, per ton | 19.00@ 20.00 |
| Ground Feed, per ton | 21.00@ 23.00 |
| Linseed-oil-cake, western, per ton | 35.00@ 40.00 |
| Cotton-seed-cake, per ton | 25.00@ — |
| Chandler's Scraps, per ℔ | 2@ 3 |

### Prices of Fertilizers.

| | |
|---|---|
| Nitrate of Potash (95 per cent.), per lb. | 9 @9½c. |
| Sulphate of Potash (potash 44 per cent) per lb. | 3 @3¼c. |
| do. do. (potash 27½ per cent) per lb. | 1½@1¾c. |
| German Potash Salts (potash 12 to 15 p. c. p. ton. | $15.00@18.00 |
| Muriate of Potash (potash 50 per cent), per lb. | 1¾@2 c. |
| Nitrate of Soda, per lb. | 3¾c.@4¼c |
| Sulphate of Ammonia (25 per cent.), per lb. | 4½c.@4¾c. |
| Dried Blood (ammonia 13 per cent) per ton | $40.00@45.00 |
| No. 1. Peruv. Guano 10 p. ct. ammonia, standard, ⅌ ton | $56.50 |
| do. do. Lobos, do. do. do. | 47.50 |
| do. do. guaranteed, ⅌ ton, cargo J | 56.00 |
| do. do. rectified, per ton, 10.20 p. c., | 69.00 |
| do. do. do. do. 3.40 p. c. | 51.00 |
| Soluble Pacific Guano, ⅌ ton | 45.00 |
| Excelsior Fertilizer Works, Fine Ground Raw Bone, | 55.00 |
| Mapes' Complete Manure (clay soils) per 1,000 lbs. | 25.00 |
| do. do. do. (light soils) per 1,000 lbs. | 25.00 |
| do. Grass and Grain Top-dressing, ⅌ 1,000 ℔s. | 25.00 |
| do. Fruit and Vine Manure, do. | 17.50 |
| do. Bone, strictly pure, meal per ton | 42.00 |
| do. do. do. medium do. | 36.00 |
| do. do. do. dissolved do. | 42.00 |
| do. Potato Manure per 1,000 lbs. | 22.50 |
| do. Corn do. per 1,000 lbs. | 23.75 |
| Stockbridge Corn Manure, per acre | 20.00 |
| " Potato do do | 10.00 |
| " Tobacco do do | 50.00 |
| " Rye do do | 10.00 |
| " Wheat do do | 15.00 |
| Bowker's Hill and Drill Fertilizer, per ton | 45.00 |
| Baugh's Raw Bone Phosphate, per ton | 33.00 |
| Baugh's Manure for Tobacco and Grain, per ton. | 45.00 |
| Walton Whann & Co.'s Raw Bone Phosphate | 40.00 |
| Gypsum, Nova Scotia, ground, per ton | 8.00 |

## A Creamery and a Farm Butter Dairy.

### Prize Offered for Plans.

Some forms of association or coöperation being profitable are likely to be adopted more generally than they are at present. The cheese factory is an example of this; it is a purely American institution, the rapid increase of which, abroad as well as at home, attests the practicability and profit of association among farmers for a specific object.

By making cheese in the factory, the large quantities operated upon secure uniformity in the product; certain manipulations are essential, and there must be a certain expenditure of time by the operator, whether for one cheese or a hundred, and on a large scale there is a great saving in these matters. One important result of making cheese at the factory is a great lessening of the labors of the farmer's wife. These are but a few of the advantages of associated or factory cheese-making, which has been so successful that there is a widespread desire to apply the system to butter-making also.

While there are creameries, as butter factories are called, they are far less numerous, and their requirements and workings seem to be less generally understood than are those of cheese factories. In many neighborhoods where butter is made upon the farm the question of associated butter-making is earnestly discussed, and in some cases creameries have been started without, it is feared, proper knowledge of the subject.

A warm friend of the *American Agriculturist*, who is largely engaged in farming in a locality where butter made in the home dairy is a leading product, has become, with his neighbors, much interested in

the proposal to establish a creamery in his vicinity. Being impressed with the meagre information as to the details of such a product readily accessible, and desirous that those elsewhere as well as in his own neighborhood should have more definite data than he has been able to find, he proposes that we shall, on his behalf, offer prizes for

**Best Plan and Description of a Creamery.**

These plans must not only cover the building itself, but its entire outfit and the arrangement of the apparatus to secure the most economical working of the milk of from 100 to 500 cows.

Without attempting to enumerate every point to be provided for, the following are suggested:

THE BUILDING.—Its location; ease of approach with loaded wagons; plans and elevations sufficiently in detail to work from and drawn to a scale; full specifications should accompany the plans, to include everything belonging to the building itself; also an estimate of the cost.

OUT-BUILDINGS.—Plans of whatever are necessary are to be given, such as ice-house, boiler and engine-house, etc.

ADJUNCTS.—The water supply; drains to carry off all the wastes of the establishment; ice-ponds, or other sources of ice; a piggery, in case the whey is to be fed out, will be needed.

HEATING, COOLING, AND POWER.—A boiler and pipes for conveying steam; refrigerators or cool room for milk, cream, or butter; steam engine, or other motive power.

APPARATUS.—Include everything needed for the reception and prompt weighing or measuring the milk; for setting the milk and separating the cream; vessels for holding and keeping cream; churns; butter-workers, and whatever else is necessary in the production of butter.

MARKETING.—Packages, stamps, moulds, cases, delivery tubs, marking plates.

SKIM-MILK.—The disposal of this must be considered, and the necessary apparatus for making skim-milk cheese provided.

CLEANLINESS.—Provision for thoroughly cleansing every utensil used, the building itself, and those therein employed; also ventilation.

In the use of the word "Plans," it is not restricted to the plans for the building, but comprises the entire outfit, or, as the English say, "plant" of a creamery. A treatise on butter-making in a creamery is not sought, but a full enumeration of all the appliances by which it is made is desired, together with the probable cost.

The drawings and necessary descriptive matter, written in black ink upon one side only of foolscap paper, are to be sent without the author's name. (The name is to be sent in a sealed envelope, upon which is a word or motto corresponding with a similar one upon the plan.)

The plan receiving the prize to become the property of the gentlemau offering the prize.

The plans, etc., should be directed to the care of Orange Judd Company, marked "Creamery Plans," and should be in on or before July 1st.

For the best plan, etc., a cash prize of **$75.00.**

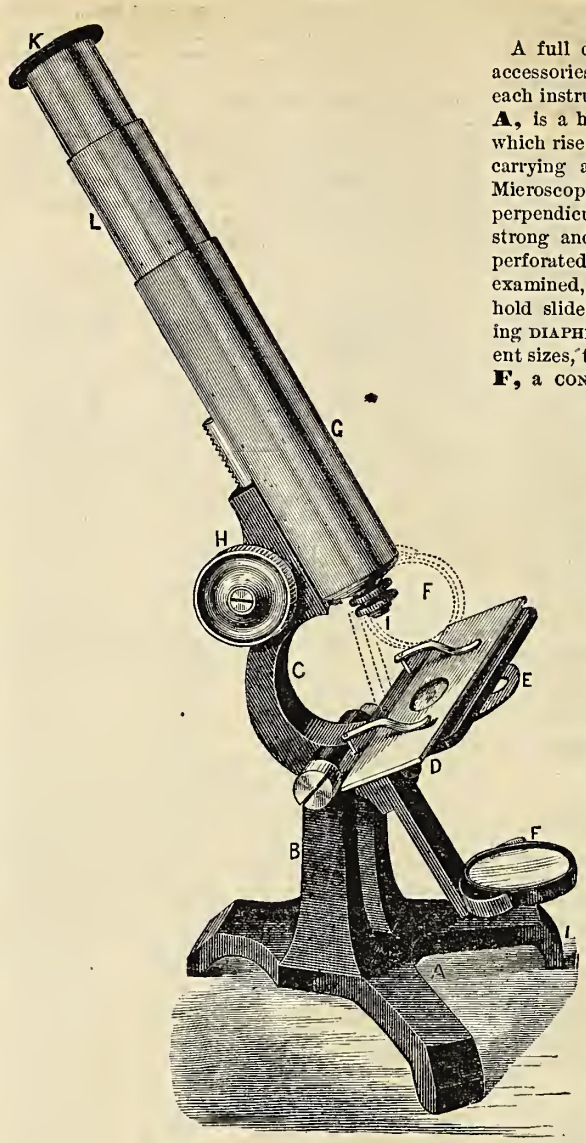
## A Butter Dairy for the Farm.

**Prize Offered for Plans.**

In view of the fact that the highest excellence in butter-making can only be reached, where the operations are carried on in a properly appointed building, devoted to no other uses, and that great improvements have been made within a few years in the appliances and methods of the farm dairy, prizes are also offered for a private butter dairy arranged for the milk of five up to twenty cows. This offer requires plans for a separate building and its complete outfit of the apparatus best adapted to butter-making on this smaller scale.

The plans should be made with a view to utilizing the facilities afforded by an ordinarily well appointed farm—such as, for example, the water supply, ice house, etc. The same general conditions as for the creamery above given, will be observed.

For the best plan, etc., a cash prize of **$25.00.**




**DESCRIPTION.**

A full description of the Microscope and its accessories, and how to use them, accompanies each instrument. The following is a brief outline: **A,** is a heavy, neatly japanned iron FOOT, from which rise two pillars, **B,** with trunnions between, carrying all the other parts, and allowing the Microscope to be used at any desired angle between perpendicular and horizontal. These parts are strong and solid, to give steadiness. **D,** a large perforated hard rubber STAGE, to support objects examined, with spring CLAMPS, easily adjusted to hold slides, etc., or to be removed. **E,** a revolving DIAPHRAGM, perforated with openings of different sizes, to graduate the amount of light desired. **F,** a CONCAVE MIRROR on a MOVABLE ARM, arranged to be turned to light coming from any direction—to be used *below* for transparent objects, and *above* (see dotted lines) for opaque objects. **C,** a curved arm, carrying the BODY **G,** which is nickel-plated. The body is raised or lowered and adjusted with great nicety by a very efficient, smooth-working RACK and PINION, moved by the MILLED HEADS **H,** (one is hidden from sight in engraving). **I,** two OBJECT GLASSES, used separately or together, according to the power desired. The greatest care is taken with these object glasses, and we feel sure that they are far superior to anything ever offered, except for very much higher priced instruments. The image produced by them is again magnified by the eye-piece **K,** (illustrated and described on next page). This fits into the DRAW-TUBE **L,** 3½ inches long, which thus allows the body to be materially lengthened, and by removing the eye-piece further from the image, increases the magnifying power. The great advantages of this will be very apparent in using it. *Every part of the Microscope is made in the most thorough workmanlike manner, and it is constructed with a view to the most efficient service.* (SEE NEXT PAGE.)

NEW AMERICAN AGRICULTURIST

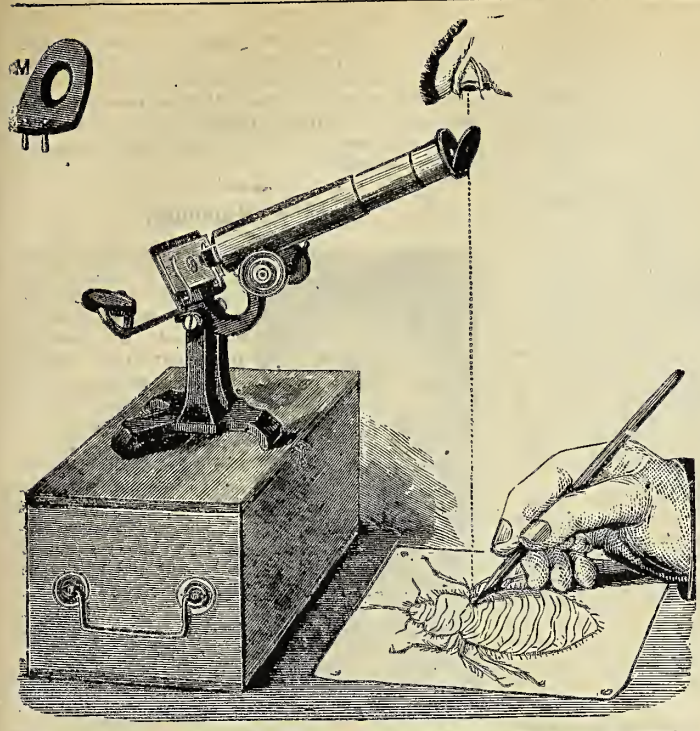
# COMPOUND MICROSCOPE.

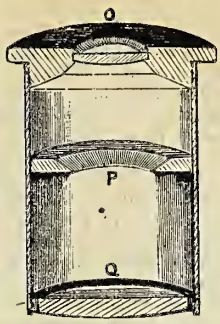
*Magnifies* 100 *to* 125 *Diameters* (*or* 10,000 *areas and upward*), *with excellent defining power, Jointed Stand, fine Rack and Pinion, Movable Eye-Piece and Draw-Tube, Double Object Glasses, Stage, Springs, Revolving Diaphragm with different apertures, Mirror adjustable to transparent and opaque objects, etc. Has the principal and essential attachments of a* $100 *Compound Microscope, and ALSO the CAMERA LUCIDA.*

The Publishers of the *American Agriculturist* announce with great pleasure, that after long efforts, with the aid aud great skill of the BAUSCH & LOMB OPTICAL COMPANY, they have finally brought the above most valuable combination within reach of all those who could not afford the necessarily high cost, hitherto, of so desirable an instrument. Though equal in power and essentials to a Microscope and Camera Lucida costing $50 and upward, this can be retailed for $15, and to Subscribers to the *American Agriculturist*, for 1879, *for whom it was specially designed*, but was not completed in time to offer before, it will now be supplied for $10. Each instrument, with Camera Lucida, goes in a neat handy Walnut Case; also hollowed glass slide, 4 plain slides, 6 thin glass covers, 2 mounted objects, and a microscopic treatise, giving full explanations and instructions for use, mounting objects, etc., etc.

**The above instrument is a most remarkable one.** For all practical purposes, it is as useful as anything ever before offered under $50, or more. Only a few persons pursuing special investigations, will need any more powerful or perfect Microscope. Prof. SPENCER F. BAIRD, Secretary of the SMITHSONIAN INSTITUTION, at Washington, happening into the office on other business, saw one of these new *American Agriculturist* Compound Microscopes on the table, and after examining it thoroughly, he pronounced it one of the most complete and handy instruments, for general use, that he had ever seen, and immediately ordered one for the Institution—at the same time requesting a good supply of the descriptive circulars sent along with it, that he might give them to the large number of students and investigators who are from time to time at the Institution, and who want just such an instrument.—The highest commendations have also been received from Prof. Asa Gray, of Harvard University, and from many other distinguished scientific and professional men.——*No more interesting and useful an apparatus could be introduced into any family, in country or city.*

NOTE.—The first 100 of these Microscopes cost an average expense of over $20 each. We have now reached a point where, with all facilities complete, by the use of machinery in constructing the various parts, we shall be able to supply them to all *our subscribers* who want them at $10 each—though the regular price to others will be $15. Address Publishers of *American Agriculturist.*






THE EYE-PIECE is shown above in *section*. (It is seen in place at K on the opposite page.) The use of this is to magnify the image formed by the lower, or object glasses. In low-priced instruments this is usually a glass fastened in at the end of the body of the Microscope, but in this instrument we have a regular separate eye-piece, as furnished with the most costly Microscopes. As shown in section, we have first the lower, or *Field-glass*, Q, which receives the *image* formed inside of the BODY by the Object Glasses. Above this is a *Diaphragm* of blackened metal, P, to cut off all unnecessary rays, and give a more distinct image, which finally falls upon the *eye-glass*, O, and that transmits the greatly enlarged image to the eye. Both glasses are mounted in frames and attached by removable screws. This eye-piece is 2 inches long, and, with the Draw-Tube, adds over 5 inches to the length of the body, when desired.

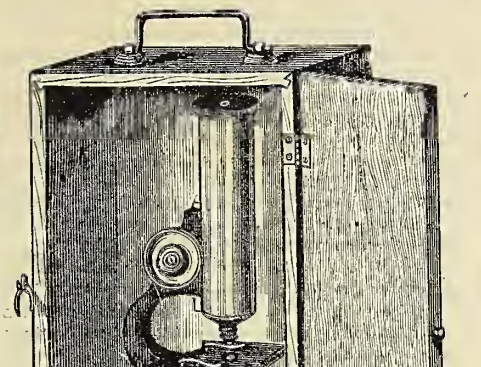
# THE MICROSCOPE

AS USED WITH THE

## CAMERA LUCIDA.

*A most interesting and valuable attachment to this* NEW MICROSCOPE, *enabling any one to throw upon paper a greatly magnified Image of objects too small even to be seen by the unaided eye, and to make accurate sketches or pictures of the objects in very large size, for permanent preservation.*

A most important feature of this New Microscope is the newly devised CAMERA LUCIDA Eye-piece Attachment. This accomplishes in a very simple but effective manner, what has previously required most costly arrangements, that have been chiefly used only with very expensive microscopes. *This Camera Lucida is alone fully worth all the cost of the microscope and the entire apparatus.* For example, place in the microscope a small bit of the end of the leg of a fly, or of the antenna or feeler of a bee or other insect, or any other minute object barely visible to the unaided eye. It will be magnified 50 to 100 or more *diameters* (or many thousands of *surfaces*). With the Camera Lucida, the magnified image is clearly seen upon the paper, so that one can with a pencil, trace it accurately in large size, in all its parts, its hairs, markings—in short, produce permanently upon paper, for preservation and exhibition, an accurate sketch of the wonderful developments which the microscope reveals to the eye.—The application of this Microscope has a very wide range. With the Draw-tube and Eye-piece closed in, and by removing the lower Object-glass, the power can be reduced to 25 diameters, so as to examine the whole of a small insect at one view; while by putting on all the power (100 to 150 diameters), the foot of a fly, for example, will be expanded to cover the whole field of vision. Full explanations for using Microscope, Camera Lucida, preparing specimens, etc., etc., with general instruction, accompany each instrument.



*Walnut Case* (8×5×4 inches) constructed to hold the closed Microscope firmly in carrying it, and preserve it from dust and injury when not in use. It has receptacle for slides, and other accessories, for specimens, etc.

The CAMERA LUCIDA, is a most interesting and *valuable attachment*. For example: Take a bit of clean glass, breathe upon it to dampen it; then simply touch it with the wing of a Butterfly or Moth. A bit of fine dust hardly visible to the unaided eye will adhere to the glass at some point. Place this point on the Stage of the Microscope, and a mass of beautiful feather-like scales from an inch to three inches in length will be seen, with comb-like ends and various markings. These will be alike for the same species, but of the thousands of different butterflies and moths, these feather-scales will be as different in form, colors, marking, etc., for each species, as are the feathers of different kinds of birds. Apply the Camera Lucida, and the feathers will be thrown upon paper in their true form and color, and may then be easily traced and sketched with a pencil, and even colored, if desired. We have drawings of such feather-scales from wings of butterflies, three or four inches long and two inches or more wide, made with this new Microscope, from the dust on the wings of the insects, which was scarcely visible upon the bit of glass. *There is an unlimited field for the application of this Microscope and the Camera Lucida.*

*containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of room elsewhere.*

**Clubs** can at any time be increased by remitting for each addition, the price paid by the original members: or a small club may be made a larger one at reduced rates, thus: One having sent 6 subscribers and $7, may afterwards send 4 names more and $3, making 10 subscribers for $10.00; and so for the various other club rates.

**Bound Copies** of volume 37, and of every previous volume back to Vol. XVI. (1857), neatly bound, with gilt backs, Index, etc., are supplied at $2 each (or $2.30 if to be sent by mail). See Publishers' Notes, 2d cover page.

**The German Edition.**—All the principal articles and engravings that appear in the *American Agriculturist* are reproduced in the German edition. Besides these, there is a special department, edited by an eminent German cultivator. Our friends can do us a good service by calling the attention of their German neighbors and friends to the fact that they can have the paper in their own language, and those who employ Germans will find this Journal a most useful and acceptable present.

**Read the Advertising Columns.**—Letters are daily received by the editors, asking where pigs, fowls, seeds, fertilizers, machinery, etc., can be procured. We consider all the information of this kind that is given in the advertising pages sufficient, if those needing anything will only look there; and can not find room to repeat what is already plainly told elsewhere. Every page of the *American Agriculturist*, including the covers, is interesting reading, and should all be carefully examined every month. In addition to looking after what one may want, the reading of what others have to say, in offering their wares, etc., starts up some new idea in the mind of the reader.—When writing to any advertiser, always tell him in what paper his advertisement was seen.

**The Australian Exhibition** is to open at Sydney, in August next, and will be largely, of course, Agricultural, though other departments will be amply provided for. Special buildings have been erected in Prince Alfred Park, and every facility will be afforded to exhibitors. Our Makers of Agricultural machines and similar wares should make use of this opportunity to present their wares to the enterprising farmers of the colony, and we hope that American industry will be largely represented at this exhibition not only because we think it will be profitable, but in some measure to show our appreciation of the most interesting contributions made by the Australians to our Centennial.

**The American Pomological Society.**—Just as last month's paper was going to press we were informed that this Society had been invited to hold its next session in New York City. Knowing that the subject of meeting here had been discussed, we supposed the information to be correct, and made the announcement. We too late learned that this was an error. The Society will not meet in New York, and we can not at the moment of closing our pages say where the meeting will be held. Probably the condition of its President, Colonel Wilder, the severe accident to whom is elsewhere noticed, may influence the selection of the locality.

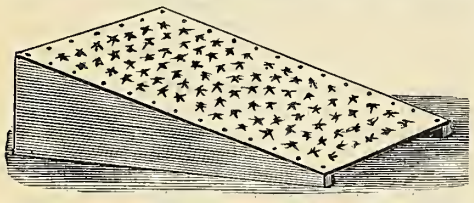
**Basket Willows.**—"J. S.," Brady's Bend, Pa. Basket willows may be grown upon any good farm land, from cuttings about a foot long. We would not advise you to undertake their culture unless you are sure of a market. The basket makers are nearly all foreigners, and such is their prejudice against stock grown in this country, that it would be very difficult for you to dispose of your product in the New York market.

**The New York Bench Show of 1879.**—The Annual Bench Show of Dogs has become a regular institution in this country, and the third one held in New York, on the 8th to 11th of April, was, by far, the most interesting and popular of the series. There was an unfortunate oversight in not having gentlemen of urbane manners, with a little less *hauteur* and not on the small-beer order, to encourage and facilitate the labors of those who, by pen and pencil, endeavor to encourage and develop such shows by directing to and fixing public attention upon them. Barring the general complaints on this point, which will doubtless be obviated another year, everything passed off successfully and pleasantly. We have selected for an engraving for our first page a few of the most popular among the dogs exhibited, and those which may be taken as types of their classes. The dog on the upper left hand corner is "Sefton," a beautiful

lemon and white animal owned by Mr. E. A. Willard, of Illinois. The next below him is "Major," a Newfoundland dog owned by Mr. Gilson of New York. This animal has saved three lives from drowning, and if for no other reason, deserves to appear in our picture. The dog at the bottom left hand corner is an Irish Water Spaniel, "Mack," owned by Mr. Lawler, Mt. Vernon, N. Y. On the upper right-hand corner is a Scotch Collie, "Ray," owned by Mr. Watts of New York, a sprightly specimen of the erect-eared variety of the Shepherd's Dog; with him is shown a pet Yorkshire Terrier, "Charlie," owned by Mrs. Haines. Under these is a Russian Setter, "Czar," a notable dog, the property of Mr. Edwin Smith, of Newark, N. J.; with him is a Japanese Spaniel, "Prinnie," owned by Mrs. Pratt, of New York. The native bred Setter, "Jersey Duke," owned by Mr. Von Lengerke, of Hoboken, N. J., is shown at the bottom right hand. This dog is a remarkably fine specimen of his breed.

**EVERY SCHOOL, Public and Private, and Every Academy and Seminary,** not already supplied, ought to have one of the new COMPOUND MICROSCOPES, described *on page* 172. Never before has there been an opportunity for so complete, so interesting, and so useful an instrument, at anything like so small a cost. In at least one public school the pupils are already engaged in making sketches from natural objects with the Camera Lucida of this instrument, for exhibition at the next Queens County Agricultural Fair. It would not be difficult to secure one of these Microscopes at the present low price, for every public school in the country, either by use of general funds, or by a subscription among the patrons. This Microscope brings into plain view, all around us, a beautiful and interesting world of objects a hundredfold more numerous than all our unaided eyes behold. It would be a great treasure in any *home* also.

**A Horse-Radish Grater.**—A correspondent, whose name we have mislaid, sends a sketch of a home-made grater. Two wedge-shaped pieces of board a foot long and three inches wide at one end, with a piece to go



across at the wide ends are nailed together; upon this frame is tacked a tin—a piece from a fruit can will answer—perforated with rough holes—as shown in the engraving. Such a grater will be useful for many other purposes besides preparing-horse-radish.

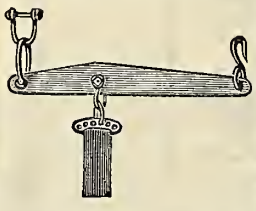
**Quinby's New Bee-keeping.**—This volume, which was announced as in preparation, is now in press. Mr. Quinby's work, in its earlier editions, has long been the standard practical guide on all matters relating to the apiary. Soon after the last revision of the work appeared (in 1865), discoveries and inventions were made that greatly modified the practice, and wonderfully advanced the art of bee-keeping. Feeling that his work was incomplete in lacking these important matters, Mr. Quinby had arranged for a new edition which should include these, but his sudden death prevented its completion. Fortunately his son-in-law, and many years business associate, Mr. L. C. Root, has undertaken the revision, as he is not only better qualified than any one else to give Mr. Quinby's latest views, but by long practice and close observation, is able to contribute much of value from his own experience. The Book is essentially a new one, having been re-written almost entirely, and it is illustrated with a large number of engravings, most of which are new. There is no other work that so completely presents the present condition of apiarian knowledge and practice, and while it keeps in view the business aspects of the subject, the wants of those who would keep bees for their own amusement, or to produce a family supply of honey, are also provided for. Published by the Orange Judd Company, price $1.50, post-paid.

**A New Work on Dogs.**—Much has been written upon the dog from an agricultural point of view that is not at all favorable to that animal. But there are dogs and "dogs," and however we may condemn the worthless, sneaking, sheep-killer, the love for a faithful, intelligent, and affectionate animal, is altogether too common and too deeply implanted in the make-up of most men for it to be shaken by the misdeeds and general worthlessness of the discreditable members of the race. A new work on dogs has no reference to the mongrel, nondescript, nameless beasts that are known by the general term of cur. The breeding of dogs for different uses has been followed so long, that the personal peculiarities that best adapt them to the different purposes for which they are to be employed are thoroughly stamped upon and mark the different breeds. To know the characters of these breeds in their purity, and the uses to which they are adapted, to understand the care proper to preserve the animals in health, and to treat them when ill, are matters that interest all owners of dogs, and consequently a large share of those living in the country, and works giving this information are properly included in a general list of rural books. The most recent addition to this class of literature is a new work, published by the Orange Judd Company, "The Dogs of Great Britain and America," in which are contained the essential portions of two works by Stonehenge (J. R. Walsh), the great English authority on rural sports, and to this are added chapters by American authors, making one of the most complete, as it is one of the most beautiful, works on the dogs ever issued. Besides, this condensation allows the Publishers to furnish all that is of value in the two works for less than one-fourth of their original price. The illustrations are numerous and accurate, and the whole is produced in excellent style. For further particulars, see the publishers advertisement on another page. Price, post-paid, $2.

**Cotton Seed Meal and Sugar Feed.**—"C. L.," Tivoli, N. Y. Ground cotton-seed cake is a wholesome and safe food for fattening cattle or sheep, and for milk cows. It is a rich food, and at first should be used in small quantities gradually increasing up to 3 or 4 quarts daily. One quart a day is enough at first, and at the end of two weeks, a cow may receive 3 quarts safely; a fattening steer may have double this quantity. In feeding cows, the writer esteems it worth twice as much as corn meal, and good for milk and butter.

**Farm Steam Engines—The Bookwalter**—The makers of steam engines for farm use have made such improvements in compactness, simplicity, and efficiency, that with a number of them it seems hardly possible to improve any further in these directions. But there is one respect in which there is still room for improvement—the cost. It is often the case that the farmer who would be most benefited by the use of steam power, is the very one who can not afford to introduce it, the cost of the very cheapest engines now offered being more than farmers in moderate circumstances can well invest. We are glad to notice that one firm of engine makers has already made essential reductions in prices. The Bookwalter Engine, which was illustrated in the *American Agriculturist* in March, 1877, has, we are glad to learn, met with such an increasing sale that the proprietors have been obliged to enlarge their works, and their establishment at Springfield, O., covering several acres, is one of the most complete in the country. With increased facilities for production, the proprietors are enabled to reduce the cost of their engines, and they issue a special circular to this effect. As in all such cases, the advantages are reciprocal; the greater the number of engines sold, the cheaper they can be made, and the lower the price at which they are offered, the more will be sold.

**Evener for 3 Horses Abreast.**—"F. B.," Niles, sends a method of hitching 3 horses abreast to a plow as follows: "There are plows made here for three horses, with which the draft can be so regulated that one horse can walk in the furrow, and the plow will, as far as side draft is concerned, run itself. We use the three-horse evener shown in the accompanying sketch, and think it equal to any unpatented evener made. It consists of a bar of half-inch iron, two and a half inches wide at the widest part, and tapering towards the ends. The center horse is attached to a hook placed at the top, and the outside horses are fastened to the bottom by an evener long enough to allow the center horse to walk between them easily." This is shown in the engraving.



**The Hon. Marshall P. Wilder,** in leaving the State House, Boston, made a mis-step and fell; it was found that the accident was more serious than was at first supposed, the head of the thigh bone being broken. This occurred late in March; a letter from an intimate friend of the Col. early in April says, that he "was comfortable, but of course with a man over 80 it is impossible to predict what the result may be." There are few persons in the country whose circle of acquaintances is so wide as that of Col. Wilder, and we are sure that he will receive from every quarter the warmest wishes for his speedy recovery. Notwithstanding his advanced age, we may hope for more favorable results in his case than we might in one who had less perfectly preserved his bodily and mental strength and vigor.

**The Melbourne International Exhibition,** Australia, not content with the exhibition at Sydney, this year, has provided for another in 1880, at Melbourne, Victoria. The programme at hand is very elaborate, but at present we need not say any more than that those wishing information may apply to "The Agent General for Victoria, 8 Victoria Chambers, Victoria Street, Westminster, London, S. W," or to "the Secretary International Exhibition of 1880, Melbourne, Victoria, Australia."

## Sundry Humbugs.

We wonder if the "Royal Gift Swarry" exhausted itself in the effort to "increase the sale of tickets," mentioned last month. While our April budget was largely made up of the circulars of this "Royal" swindle, this month our supply is confined to just two. One young man in Kansas apparently wishes to learn about the "Royal Gift Soiree" through personal experience, as he asks us to send him the address of its authorized agent! Excuse us, we are not in that line of advertising....Here is a fresh scheme, the "Kentucky Land Co.," which proposes to "distribute" residences, three-acre lots, farms, and fast four-in-hand teams in the most impartial manner. It asks us to

"PUT IN $5, DRAW OUT $225,000,"

and the whole affair reads very Pattee-ish....It is not surprising, perhaps, that parties receiving a notice that they have "drawn a gold watch and chain valued at $300," which will be forwarded upon the payment of $3, "to cover expenses, percentage, etc.," should think it possibly worth looking after. We have now half a dozen or more letters, in which the writers ask us to procure for them watches, jewelry, or other things said to have been drawn by them in some lottery. These must be from newer readers as our older friends know that

WE CAN NOT ATTEND TO THESE COMMISSIONS.

We have no time to waste on such errands. If the place given in the letter is found at all, it is more than likely to be a room at the top of some obscure building, with a hole in the door for letters. Should any one be found, the caller will be told that business is done only by mail, that the drawer of the prize has not complied with the conditions, which were to send $3 by mail or by express. Whatever else may happen, the one who calls will be very sure to get no "gold watch." For years past we have investigated this whole matter so thoroughly that we know that in all attempts to collect any of these claims one "has his labor for his pains."... We have to record a melancholy commercial disaster,

THE PARISIAN DIAMOND SHOP HAS BUST!

There was a shop where "diamonds" were sold, not vulgar African, nor yet Brazilian diamonds, but the real "Parisian Diamonds" of which we were told in the circular that the body was crystal, on which was deposited—by electricity of course—a coating of diamond!! Probably those who knew no better believed this impossible story. When it is known that the proprietor, though he called himself Humphreys, was really one of the Eliases (with Humphreys as a middle name), the diamond coating story will cease to be surprising.... Last month we gave some account of

THE DICTIONARY OFFER.

This appears to have broken out in several places, as persons in other small towns in Massachusetts, besides the one then named, as well as parties in Brooklyn and New York City, send out postals offering Dictionaries in terms almost verbatim alike. The offer implies that the Dictionary is worth $6, and is offered for 56 cents. We stated last month that it probably did not cost over 25 cents. In view of this, a bookseller in St. John, N. B., informs us that he sells the very same Dictionary (which is printed in Glasgow, Scotland), for 17 cts., post-paid.

NOW LOOK OUT FOR LIGHTNING RODDERS.

So soon as the roads become settled, there cometh the Lightning Rod Man, whose tongue after a winter's rest is ready to wag with more than usual glibness. It is well for every one to decide whether he wishes a lightning rod or not. If one is needed, buy the iron and put it up. If one is not needed, prepare yourself with

A BIG UNCOMPROMISING NO!

Don't argue with the lightning-rodder; if you do he will beat you, and you will buy his rod. There is only safety in a no! If he tells you how many were killed by lightning last summer, admit it; if he shows you how his double and twisted rod only is safe, and that a plain iron rod is worse than no rod, don't deny it. Get rid of him,

if possible, before he can frighten the women and children, by an account of their daily and hourly danger, and persuade them that without *his* rod, life is doubly uncertain. Rods put up by these travelling chaps are very sure to cost several times more than the unfortunate purchaser supposes they will, but more than this, the lightning-rod business is frequently made the medium of

MOST RASCALLY SWINDLING.

Every year we get several complaints, and one has already come from Nebraska, a brief account of which may put farmers and others on their guard. A young lady was killed by lightning in Boone Co. last summer, and this made that county a harvest field for the rodders. Last fall a chap, claiming to represent Reyburn, Hunter & Co., of Philadelphia, victimized a large number of the "hardworking, unsuspecting pioneers of Boone Co." The death of the young woman afforded the chap a strong point, and he did not want ready money, but would take notes to run from one to five years, with interest not to commence until June. As usual, there was a gang of them. He of the glib-tongue came and took the orders; then came men to put up the rods; then came another and took the notes. Here was the worst mistake of all.

"FARMERS BE CAREFUL WHAT YOU SIGN,"

the injunction which we have so often repeated, and shall have to repeat so many times hereafter, was forgotten, or at any rate, not heeded. The notes were signed, but the farmers were not "careful." They have been reminded of their want of care in a most positive manner. A lawyer in Marshalltown, Iowa, has notified the several signers that he has purchased their notes, and that they are due on the first day of next June! No such concern as Reyburn, Hunter & Co., is to be found in Philadelphia, and our correspondent asks what these givers of notes shall do. We do not know what is the law in the case, but we should advise all who have given these notes to unite and make common cause to resist the payment of them. If the facts are as stated, it should not be difficult to prove that they were

OBTAINED UNDER FALSE PRETENCES.

There is no doubt, justice to be had, if the Boone County people show a united front, but if each one is left to be threatened and frightened individually, without the support and sympathy of others, he will make the best of a bad bargain, and get out of it as well as he can. Our correspondent thinks that the publication of this case will "put people on their guard," and so it will, with a great many, but we are less sanguine in that respect than formerly. We have published, year after year, case after case, in which farmers have come to grief through want of care in signing their names; we have printed in small type and in large type:

"FARMERS, BE CAREFUL WHAT YOU SIGN!"

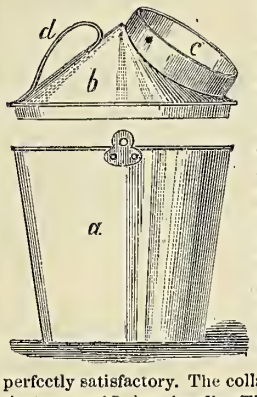
until the repetition has seemed irksome. Yet each year brings many new illustrations of the need of forcibly repeating the caution. It is not only Lightning-rod men who prey upon the farmer, but all sorts of devices are resorted to, to get somehow, by hook or by crook, the farmer's name.—He thinks he is merely giving his address, is showing the stranger how to spell it correctly, is giving an order for certain goods to be delivered at a future time, or in some other manner the name is obtained, and the next he hears of it is at the bottom of a note that some neighbor has bought, or the bank in the next town has discounted....An old swindle has been revived in some of the New England towns. It is to advertise for a party to act as agent for the sale of some quack medicine; in this case it was

"ROCKY MOUNTAIN BITTERS,"

but the agent must have a few hundred dollars to advance for an "interest in the business." The "Doctor" who represents himself as proprietor of the "Bitters," hires a store, sets mechanics to fitting it up in good style, and gets the money the agent is to pay; he gives the agent possession of the store, and goes off to send on the "Bitters." Agent waits, and if the "Rocky Mountain" sort does not come he has no lack of "bitters" of his own, in the shape of rent, and the bills of carpenters and painters to pay, and the bitter consciousness that the other chap has got his money.

**Fairs for 1879.—Time and Place Wanted.**—Several announcements of fairs and premium lists have already come to hand, and we make our usual request to the secretaries, or executive officers of the various societies, to inform us of the fair as soon as its date is determined. It may seem a strange request, but we ask them to be particular to name the *State*, in their announcements. A large share of the premium lists, show bills, etc., of county and smaller fairs fail to say in what State the fair will be held. As counties go, Washington, Jefferson, and some other counties, are far from definite. We would suggest to societies the importance of fixing upon the date early in the season and issuing the schedule of prizes; if this is left until within a few weeks of the fair, the work is often hurriedly done, and those who would compete for those premiums that require preparation in advance, are deprived of the opportunity for doing so.

**An Improved Unpatented Milk Pail.**—"J. P. M.," Alleghany Co., N. Y., sends the accompanying sketch of a milk-pail which he uses. It is an ordinary milk-pail (*a*), with a cover (*b*), made to fit the pail; the hight of the conical part should be one inch less than half the diameter. The cover has a round mouth (*c*); the hight of the collar (*c*), should be 1¼ inches or 2 inches, measured at the upper or lower side; the diameter may be made to suit the fancy; mine is 6 inches, being about ¼ inch less than the length of the side of cone, and is perfectly satisfactory. The collar should be wired around the top; at (*d*), is a handle. Tie a cloth strainer over the collar (*c*), letting it hang down 3 or 4 inches, put a sauce plate or small sancer in the strainer, and milk away. There won't be any specks on cream from that milk.




**Jersey Red Hogs.**—"H. W.," Newbern, N. C. We do not consider Jersey red hogs an improvement on the Berkshire, except as a means of producing lard or clear mess pork. For bacon or hams, they are very inferior to the Berkshire, which is the best for hams, shoulders, and bacon, of all the breeds we have.

**A Cistern for 30 Head of Cattle.**—"J. J. L.," Gallia Co., Ohio. To supply 30 cattle with water, a cistern should hold at least 300 barrels, which would be only a month's consumption, allowing 10 gallons a day for each animal, or 10 barrels in all for one day. 1,260 cubic feet capacity would be required, or a round cistern 12 feet in diameter, and 12 feet deep, with perpendicular sides, allowing the water to be 11 feet deep.

**Irritation from Teething.**—"L. J. W.," Davenport, Fla. Young horses, when changing their teeth, are frequently troubled with inflammation of the eyes. This cannot be prevented, but may be relieved by giving a dose of 8 ounces of Epsom salts to cool the system. It may be necessary to repeat this, and half an ounce of saltpeter given daily for three or four days may be helpful. It will do no good to knock out the animal's old teeth, as often advised, while it may possibly do harm.

**Sharpening Mowing Machines.**—That one invention begets another is strikingly illustrated in the case of mowers and reapers. The value of these important machines has been greatly enhanced by the invention of other machines for putting them in order. A dull mower is a disappointment, and a minor invention was needed to make the greater one complete. Machine knife-grinders of various styles have been produced; that known as the Farmer's Favorite Emery Grinder has received special commendations. The arrangements for holding the knife-bar and the mounting of the grinder are such that one person can operate it, and secure proper bevels and edges to the sections. It needs no argument to show that the durability of a mower, reaper, or harvester is largely dependent upon the ease with which the knives do their work, and blunt edges here mean wear and tear elsewhere. The makers of the Farmer's Favorite also offer a sharpener for lawn-mowers, for which similar excellence is claimed.

**Bees and Fruit.**—Every season we have letters asking how bees can be prevented from injuring grapes, peaches, and other fruit. There is no evidence that honey-bees do injure these fruits. The mouth parts of the bee are not strong enough to penetrate their tough skins. The most careful observations of such men as Langstroth, Quinby, Root, and others, have not found the honey-bee to be the aggressor. But when the skin of the fruit is once pierced by wasps, hornets, or birds, then the honey-bee comes for a share of the juices thus exposed; and while it is often the *receiver*, it is never the real thief—or rather burglar. This is a matter of great importance to fruit growers; but before they complain of the bee-keepers, let them examine the matter and see how far their losses are due to the honey-bee, and how far to their wild relatives, the various wasps and hornets.

**Moles.**—If any one has successfully exterminated moles by the use of any trap, will he please tell us what trap, and if a non-patented one, give us a sketch and description? If any have succeeded by using poison, will they tell us what poison, and how applied? Inquiries continue to come as to moles, and we would like to be able to give a satisfactory answer. We have not yet seen a trap that was worth more than its weight as old iron. Our only help is a cat; she is not patented, and is not for sale. She has not exterminated the moles, but has kept them in such subjection that they are not the pest that they were. We wish others' experience on the mole question, which is often an important one.

**Lawn-Mowers—The Excelsior.**—"G. W. C." We would no more undertake to decide as to which is "the best" lawn-mower than we would indicate which is the best sewing-machine or field mowing-machine. There are several styles of all of these machines so nearly perfect that each one thinks the one he happens to have is the best. But after several years' experience with the Excelsior Lawn-Mower, we can commend it as thoroughly satisfactory in the character of the work and the ease of doing it. The large demand for the Excelsior abroad shows its superiority over the clumsy machines made in Europe, and we are informed that the foreign trade is increasing in a manner most gratifying to the makers.

**The Winchester Repeating Fire Arms** deserve the very high estimation in which they are held by experienced riflemen. We have used them on many hunting trips over the plains and through the parks of Colorado and Wyoming, and found them very accurate and reliable. They are specially valuable in hunting antelope at long or short range. We have frequently been able to discharge a dozen or more shots at a band before they could get out of reach. The heavy calibre Winchester brings down our largest game at long distances.

**Cement Floor for a Stable.**—"J. P.," Lagrange Co., Ind. A cement floor for a stable should be made strong. Concrete of stone and cement, well rammed down and soaked with hot gas tar would be best for a cow stable. A horse stable should be paved with cobble stones, well rammed down and filled in with cement worked in among the stones with a stiff broom. Gas tar will then make it water-proof and harden it.

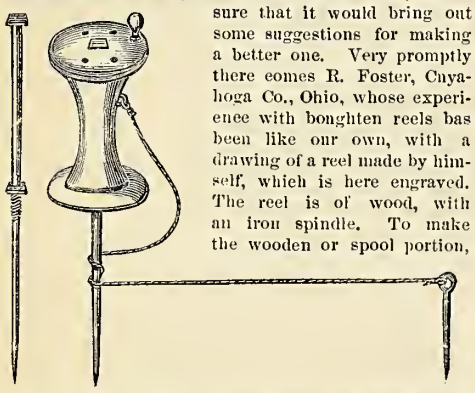
**Cosmoline.**—This, not as some have supposed, some secret compound, but is the trade name for one of the articles obtained from petroleum. Crude petroleum is a wonderful natural compound of a number of well marked substances, among which are the very light and exceeding inflammable liquids, gasoline, naphtha, etc., a heavier liquid which we know as kerosene, still heavier oils, and finally some solid substances, one of which, much like wax, is called paraffin. Of late the medicinal qualities and the uses in pharmacy of these petroleum products have been investigated, especially in Europe. So far as the solid products go, paraffin and similar substances, their resistance to all change when exposed to the air makes them especially suitable to external applications, and they probably will supersede the various animal and vegetable fats now used in ointments. Cosmoline is the trade name for one of the nearly solid petroleum compounds, as kerosene is for one of the liquids. The use of this and similar preparations derived from petroleum, is commended in a recent "Medical and Surgical Reporter," and those of our associates who have used it speak in high terms of its efficacy as an external application to raw surfaces, burns, and wherever a soothing ointment is desirable.

**To Prevent Wheat Lodging on Mucky Soil.**—"A. J. A.," Goodhue Co., Minn. Lime may be usefully applied upon mucky soils to prevent wheat lodging. Wood ashes are useful on such soils.

**The Shaker Separator and Engine.**—We are so accustomed to associate the name of Blymyer with sugar and syrup machinery that it seems rather strange to receive from the Blymyer Manufacturing Co. a neat and handsomely illustrated pamphlet, that says nothing about sugar or any other form of sweetness, but is solely devoted to the merits of the Shaker Separator, and the motive powers for working it. It may be necessary to tell some old-fashioned farmers that a "separator" is a threshing-machine; the use of that name is now becoming very general, and has the advantage, if no other, of making one word serve instead of two. From the well-known thoroughness of the Blymyer Co. in other manufactures, we have no doubt of the excellence of the Shaker Separator. The machine as compared with the old style of thresher appears ridiculously small, yet when we are assured that it will thresh and clean from 20 to 50 bushels of wheat, according to the power used, in an hour, it is evidently large enough. The makers claim to have produced a machine which can be sold at a price that will allow a farmer to have his own thresher, and of a size that can be worked in the barn, enabling him to thresh his grain when convenient. Horse powers of different styles are made by the Company, who also make the "Queen City," a portable farm steam-engine, which we described and figured in October, 1877.

**The Currant Fruit Worm.**—"G. S.," Oakville, Ont. The insect figured in March last is no doubt the same as the one you have found so destructive to "the wild gooseberries in the backwoods of Canada." There are many cases in which insects heretofore known only on wild plants have become, by the advance of settlements, introduced to cultivated plants, and there, meeting with an abundant supply of food, have increased with such rapidity as to bring them into notice. Should your insect that so generally injures the fruit of the wild gooseberry, prove to be different from the one figured, we shall be glad to know it and to receive specimens.

**A Good Garden Reel.**—It very rarely happens that we state a want but some reader kindly supplies it. When in the "Notes About Work," in the Kitchen and Market Garden, we mentioned the general frailty and worthlessness of the garden reels offered for sale, we felt sure that it would bring out some suggestions for making a better one. Very promptly there comes R. Foster, Cuyahoga Co., Ohio, whose experience with bought reels has been like our own, with a drawing of a reel made by himself, which is here engraved. The reel is of wood, with an iron spindle. To make the wooden or spool portion,



the central shaft is worked with a shave, or, better turned in a lathe from a piece of wood 9 inches long; the end pieces, 6 inches in diameter, are of inch board, and firmly fastened to each end of the shaft. The central iron is two feet long and of ⅝ iron; this, as shown at one side, has a head at the top, and 11 inches from this end has a thread cut and furnished with a nut; a hole of the proper size is bored through the reel to receive this iron, and the nut is put on to hold it in place. The lower end of this iron is pointed, to enter the ground easily, and a sharp-pointed pin, with an eye, is provided for the other end of the line. Mr. F. says that a reel of this size will hold 300 feet of ordinary garden line, and having a broad surface to push upon, is easily pressed into hard ground. When sufficient line has been run out, it is stopped by taking a few turns around the iron rod.

**Premiums at Fairs.**—In a large number of cases it is not the money value of the premium that gratifies the recipient; it is the fact that a premium was given at all. Now that Fair schedules are being—or should be—considered, and published, we would suggest to those having the matter in charge, that a number of societies offer as premiums a year's subscription to the *American Agriculturist*, and also *Agricultural and Rural Books*, and that those which have done this in a small way at first, have found it so satisfactory that they have added to the number of premiums of this kind and that this custom is increasing. Such premiums do vastly more to promote the objects of the society than mere money prizes. Aside from the fact that one can not fail to be greatly benefited by the teachings of the *American Agriculturist*, its regular coming once a month, is a frequent reminder of the Society and its Fair, and thus the interest of the recipient of the prize in the fair at which it was given, is kept alive the whole year. The case is similar with well chosen books, which will be frequently consulted. If the officers who have yet to arrange their premium lists will think of this matter, they will see that they can in no other way make the money at their disposal go so far, and at the same time do so much good, as to award a large share of it in the manner here suggested. In arranging the premiums it should not be forgotten that the household as well as the farm proper is to be thought of. There is hardly a house-keeper who would not prefer to have the dollar or two awarded for the best bread or other household achievement, in the form of one of Miss Corson's works on cookery, or in some other similarly useful work on household matters. The Publishers are ready to make special terms for the *American Agriculturist* or for books to be used for premiums.

**Whitman's Fountain Pump.**—As a portable apparatus for throwing water by hand the Fountain Pump combines many excellencies. It is remarkably compact, neat, and ingenious in construction, and so simple that it can hardly get out of order. It is worked with great ease, and for the size, throws a large quantity of water or other liquid For all horticultural purposes, not only for watering, but for applying various washes and insect poisons to plants and trees, whether in-doors or out, it has become a standard article, as we find it in the catalogues of the leading dealers of the country. As a fire extinguisher, ready for use in an emergency, and enabling one to place water where it is needed, it has proved its efficiency on several occasions. An acquaintance of several years with the Fountain Pump—fortunately for every other use than the last mentioned—allows us to speak of it in terms of commendation.

**Barracks for Hay.**—"R. W. W.," Nashville, Tenn. Barracks for hay or grain may be built very cheaply. A plan was given in the *American Agriculturist* for July, 1878. A cheaper method is to use four poles set in the ground, make a roof of lighter poles, and cover it with thatch. This might cost only $5, or even less.

Basket Items continued on page 199.

## Bee Notes for May.

BY L. C. ROOT, MOHAWK, N. Y.

In the preparation of these "Notes," I endeavor to make them very simple and practical. It is, however, difficult for those who have had long experience in any particular pursuit, to realize that its details are not as familiar to all others, as to themselves: and I may sometimes omit some minor points, or fail to be minute enough in my directions to meet the wants of all. Hence, I shall be glad to reply to any questions on omitted points that may be addressed to me.

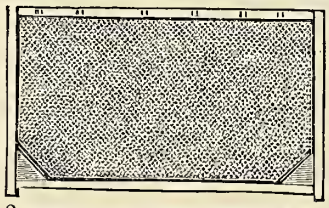
There are thousands of people who might, if so disposed, secure the honey that is wasting at their doors, by keeping a colony or two of bees, and I would show how this may be done with little expense. It is, of course, impossible within the limits here allowed, to give more than the most simple directions. Every person who proposes to keep even a single swarm of bees, should have a good practical work on the subject. Bee-keeping is no longer a question of "luck," but is an art governed by fixed rules, and must be studied as such, to be successful. In February and April, I have endeavored to make clear the requisites as regards hives and boxes, and to give minute directions for preparing them.

PURCHASING BEES.

The next point is, to secure the bees with which to commence. The present month is unquestionably the best time in northern latitudes to purchase bees. It is my custom to buy just before apple blossoms appear, and move the hives at once; if they are to be transferred from box-hives to movable frame hives, this is the time to do it. For many reasons it would be better for most beginners to procure their bees already in movable comb hives, and in proper condition to take advantage of the flow of honey which will soon follow. If the buyer has had sufficient practice, or has familiarized himself with the necessary process, transferring the bees from box-hives to those with movable frames may be done according to directions given in the *American Agriculturist* for May, 1876.

MOVING BEES.

If bees are to be moved but a short distance, and in the cool part of the day, pieces of sleazy muslin, or any thin cloth may be used to confine them. Turn the hive bottom up, and tack the cloth over, folding it firmly at each corner. If they are to be moved longer distances, wire-cloth must be used instead. If the weather is very warm, the wire-cloth should be bulged in such a manner that the bees may come above the combs and receive more air. Do not think you cannot keep bees, because you cannot buy them in your immediate vicinity. I have successfully moved hives for 50 miles in an ordinary spring wagon, and hundreds of miles by rail in a common freight car. A year or two ago I shipped a colony from my apiary to Santa Fe, New Mexico. The last 400 miles, or more, it was carried on a freight wagon, and yet it arrived in perfect condition.



2.—FRAME OF COMB FOUNDATION.

COMB FOUNDATION.

If bees are to be transferred from box hives to movable frames, and all drone comb rejected (as it should be), there will not be worker comb enough to fill all the frames. Such deficiencies should be supplied by placing sheets of Worker-comb Foundation in the empty frames. This will obviate the danger of the frames being filled with drone-comb by the bees. I had hoped to give a full description of this new invention of Artificial Comb Foundation, and the manner in which it is prepared, but circumstances have prevented. I will simply say that it is constructed from the wax made from waste pieces of comb. The wax is formed into thin sheets, and passed between rollers which give it the exact form of the base of worker combs with starters—*i. e.*, the side walls of the cells already started by a slight ridge of wax. Fig. 1 shows the machine for making comb foundation, and fig. 2, a card of it, fastened in the frame. Its advantages are many, the principal one being the ability to secure straight and perfect worker combs.

Instead of using boxes, many will desire to secure their surplus honey in a liquid form, using for the purpose the honey extractor, with which the honey may be thrown from the combs, after which these may be returned to the hives for refilling. Directions for extracting will be found in the *American Agriculturist*, for June, 1876. These comb foundations will be found useful in filling extra frames for this purpose.

STANDS AND ROOFS.

It is best that the stands for bees should be near the ground, and in a place as much sheltered from the wind as the surroundings will permit. For a stand, I prefer two pieces of 4×4 scantling, laid directly upon the ground, and the hive set upon them. While this is the most desirable situation, bees may be kept, if circumstances require, in any attic or out-building by arranging a proper entrance to the hive. Or, as is often practised in cities or large towns, they may be placed upon the roof of a building. Each hive should have a good roof to protect it from the weather, unless when set under shelter as above mentioned. A good illustration of a suitable roof may be found in the Notes for January, 1877.

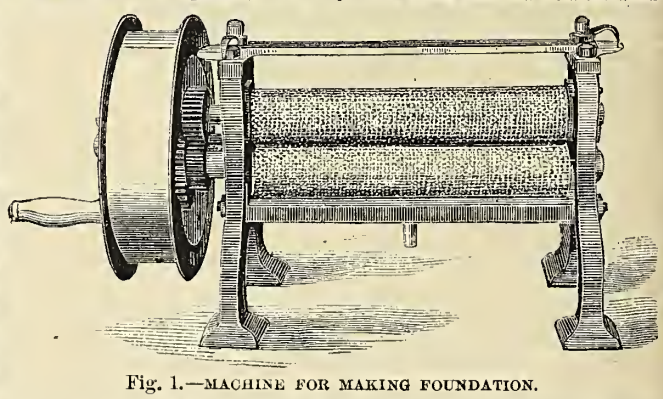


Fig. 1.—MACHINE FOR MAKING FOUNDATION.

## The Corn Crop—Fertilizers.

May is the great planting month in much the largest portion of the chief corn-growing regions. At the South, the work is mainly over; in the Northern border States and British Territories, a good deal of planting will be done in June. We give considerable space in the present paper to this particular crop, which is one of the important agricultural products of our country, and particularly to the questions of fertilizers.—On pages 183-4 are some notes from recent analyses. A careful study and comparison of the figures will supply curious and interesting, as well as somewhat instructive, suggestions as to the relative feeding values of different varieties of corn.

Within a few years a greatly increased interest has sprung up in some of the older States, and especially in New England, in regard to the corn crop; and the tendency now is to a belief that, taking into account freight from the West, the introduction of improved fertilizers, the condition of the soil, and the relative values and yields of other crops, Eastern farmers can compete with Western farmers better in raising corn than in any other leading crop. It is argued, that by the judicious use of the right fertilizers, the yield per acre is so increased at a moderate cost for the fertilizers, that in many, if not in most cases, the Eastern farmer can now raise, and put in his own bin, a bushel of corn cheaper than he can buy it from the West, after paying freight and other charges.

CORN FERTILIZERS—WHAT EXPERIMENTERS SAY.

Last year we proposed a series of definite experiments with fertilizers, somewhat like those of this year. These were tried on corn by numerous care-

ful farmers, from Maine to North Carolina, on a variety of soils, good, bad, and indifferent, but mostly poor. Prof. Atwater has given, in March, page 91, and in this number, this page, some of the results. We will summarize here for the general reader, a few of the apparent lessons derived, but recommend a careful study of Prof. A.'s articles and tables.

On the average, the largest increase in the yield of corn, 48¾ bushels, was obtained from using the "complete" chemical fertilizers, applied at the rate of $15.38 per acre (including $5 per ton added for freight and handling the fertilizers). The next best average yield was with farm manures, viz., 46 bushels per acre. But the most *profitable* yield was from those chemical fertilizers which supplied phosphoric acid and potash, with no nitrogen added, viz., 300 lbs. superphosphate (dissolved burned bones) with 200 lbs. muriate of potash. Cost of the two, $8.75.* Yield of corn from their use, 43 bushels of shelled corn. (Cost of corn, a trifle over 20 cents per bushel, deducting nothing for increased value of stalks—the labor of planting and tillage being about the same as for a small crop.)—In a few cases 150 lbs. of muriate of potash produced quite as good results. Sharp buyers can probably obtain 300 lbs. of first quality superphosphate, and 150 lbs. muriate of potash, for about $7.25. If this mixture averaged as above, viz., 43 bushels shelled corn, the cost would be under 17 cents per bushel. In these estimates we charge the whole cost of the fertilizer to the first crop of corn, allowing nothing for the after effects, which is of no small account.

It should be borne in mind that the above fertilizers enable the corn to gather a good deal of nitrogen: that when the corn is fed at home a large part of this nitrogen goes back into the soil in the form of manure, to enrich it for other crops; that this will often nearly, or quite repay the cost of the fertilizers, and that if cotton-seed meal, linseed cake, palm-nut meal, or bran, be fed with the corn, they will not only supply the nitrogen that the cornstalks lack to make them excellent fodder, but will also make rich manure at small cost to bring up the farm to high fertility. These are matters well worthy the careful consideration of every thoughtful farmer.

In stating the above *general* results of the experiments, it is to be added, that in many cases potash salts did not pay; in a few, superphosphate did not pay; while nitrogen in nitrate of soda, or sulphate of ammonia, or other forms, rarely repaid its cost. Some one fertilizer paid best in one case, and another in another. Some soils are too wet, or too dry, too loose, or too compact, to make any fair returns; but on soils capable of doing anything with manure, with at all favorable weather, the fertilizer that fitted the particular soils and their condition, brought very large profits—from two to ten-fold the cost of the fertilizers applied; and this in the first crop, allowing nothing for future benefit to both soil and manure. *One aim of our proposed experiments this year is to try to find out, as far as possible,* WHAT *fertilizers do fit particular soils.*

The upshot of the whole matter is just here: In the older States, and wherever the soils are depreciated by cropping, and especially where they are pretty well worn out, artificial fertilizers are indispensable, in the absence of abundant farm manures, and the ones that fit the demands of the soil and crop, must be profitable as a rule.

Taking the experiments as a guide, while the mixture of superphosphate with potash salts generally gives the most profitable returns for their cost, if one wishes the largest possible yield per acre, it may be well to put with the phosphoric acid and potash, some nitrogen in the form of nitrate of soda, or better, perhaps, in the form of good Peruvian guano—using per acre one of the following:

| | |
|---|---|
| 300 lbs. superphosphate,<br>200 lbs. muriate of potash,<br>150 lbs. nitrate of soda. | or,<br>200 lbs. superphosphate,<br>150 lbs. muriate of potash,<br>300 lbs. Lobos guano. |
| or,<br>250 lbs. superphosphate,<br>150 lbs. muriate of potash,<br>200 lbs. Standard Peruvian guano. | |

The amount of each of these fertilizers required per acre, may be less or more than the above, according as the soil is in good condition, or very poor. The fertilizers are supposed to be finely ground, well mixed, spread broad-cast, and harrowed in before planting. One half of these may be so applied, and the other half be *scattered* thinly in the hill at planting, and covered with a little earth so as not to come in contact with the tender young roots, and thus injure their growth.

* Superphosphate (dissolved bone black) costs $30 to $35 per ton—Muriate of Potash, ("80 per cent") $35 per ton.

300 lbs. Superphosphate, at $35 per ton....$5.25
200 lbs. Muriate of Potash, at $35 per ton.. 3.50 } $8.75

Or,

300 lbs. Superphosphate, at $30 per ton....$4.50
150 lbs. Muriate of Potash, at $35 per ton..2.63 } $7.13

## Science Applied to Farming, LI.

### Fertilizers for Corn.—Lessons from the Field Experiments.

In his excellent new book, "Talks on Manures," Mr. Harris, says, "We know less about the manurial requirements of Indian Corn than almost any other crop we cultivate." The main question is the nitrogen supply—whether, like other cereals (wheat, barley, oats, grasses, etc.), corn has but little power to get nitrogen from natural sources, and requires nitrogenous fertilizers; or, whether, like leguminous plants (clover, beans, peas, etc.), corn can gather the nitrogen for itself; that is, whether corn is, like wheat, an exhausting crop, or like clover, a renovating crop. Mr. Harris is rather inclined to class it with the cereals, but mentions some facts which indicate that in feeding capacity it is more like the leguminous plants. If the latter is the case, then Indian corn grown and consumed on the farm, will, "like clover, enrich the land...the corn will gather up the nitrogen that the wheat crop cannot appropriate, and when the corn and stalks are fed, some 90 per cent of the nitrogen will be left in the manure."

Mr. Lawes has written a letter to the Secretary of the New Jersey Board of Agriculture, and also another letter to Mr. Harris, discussing this same question, and insisting, as Mr. Harris also does, upon the need of experiments to test it. He says, "It is of very great importance to know to what extent Indian corn follows the same law [as the cereals]; that is to say, on a soil which, under a liberal supply of potash and phosphoric acid, will yield 20, 30, or 40 bushels of corn, what increase is obtained by a liberal supply of ammonia or nitrates?" Mr. Lawes is inclined to class corn with the cereals, though he would expect that with mineral fertilizers it would, during its longer period of growth, get more food from soil and air, and, especially, more nitrogen, and give a larger produce than wheat.

### Formulas for Corn Fertilizers.

In a letter to the Treasurer of the Massachusetts Society for Promoting Agriculture *, Mr. Lawes, says, "The best possible manure for all the graminaceous crops—wheat, barley, maize, oats, sugar-cane, rice, pasture grass—is a mixture of superphosphate of lime and nitrate of soda....Potash is generally found in sufficient quantities in soils, and the artificial supply is not required."

### The Ville Formula for Corn.

Ville urges what he calls "complete fertilizers" containing nitrogen, phosphoric acid, potash and sulphate of lime, and he regulates the proportions by the assumed power of the plant to get its food from soil and air, and the special effects of the different fertilizing substances upon it. He classes corn with sugar-cane, sorghum, turnips, rutabagas and artichokes, for which he makes phosphoric acid the "dominant" or most efficient ingredient. Below is his formula for an acre of corn with the amounts of valuable ingredients and their cost in the forms he recommends. The last column gives the cost in equally good but cheaper materials, like nitrate of soda, guano, bone and potash salts, which, with many important facts in agricultural chemistry, his system curiously ignores.

* Bulletin of the Bussey Institution, I, 181. From later writings of Mr. Lawes, I think he would not insist upon the universal application of the above remarks concerning potash.

### The Stockbridge Formula for Corn.

Professor Stockbridge's formulas are calculated to furnish the amounts of nitrogen, phosphoric acid and potash which the crop is found by analysis, on the average to contain. Thus he recommends for Indian corn:* "To produce 50 bushels of the grain, and its natural proportion of stover to the acre, more than the natural yield of the soil; and in like proportions for other quantities, use"—the formula below. To the formula I append cost of materials as recommended by Prof. Stockbridge, and the cost of same ingredients in cheaper forms, basing estimates, here, as elsewhere, upon current market rates, with $5 per ton added for freight and handling. To resume then, we have the following:

### Fertilizers For Corn.

MR. LAWES.

"Best Possible Manure." "Mixture of Superphosphate and Nitrate of Soda."

VILLE FORMULA.

| *Materials per acre.* | *Ingredients.* | COST. *In for-mula.* | *In cheapest form.* |
|---|---|---|---|
| Nitrate of potash, 180 lbs. | Nitrogen, 24 lbs | $ 9.20 | $ 4.80 |
| Acid phosphate ..... 540 lbs. | Phos. Acid, 81 lbs. | 9.45 | 9.45 |
| | Potash, 79 lbs..... | 7.00 | 3.56 |
| Sulphate of lime, 360 lbs. | | 1.44 | 1.44 |
| | | $27.09 | $19.25 |

STOCKBRIDGE FORMULA

"*To produce 50 bushels above the natural yield of the soil.*"

| *Materials per acre.* | *Ingredients.* | COST. *In for-mula.* | *In cheapest form.* |
|---|---|---|---|
| Sulph. of ammonia, 320 lbs. | Nitrogen, 64 lbs... | $15.20 | $12 80 |
| Superphosphate... 248 lbs. | Phos. acid, 31 lbs.. | 4.34 | 4.34 |
| Muriate of potash, 154 lbs. | Potash, 77 lbs..... | 3.46 | 3.46 |
| | | $23.00 | $20.60 |

The Ville and Stockbridge formulas differ from Mr. Lawes' recipe in supplying potash. Ville adds plaster also.—Prof. Stockbridge differs from Ville, in that he, (1), ignores the plant's feeding capacity and the specific effects of the different materials upon it; (2), considers only the composition; (3), accordingly gives nitrogen the dominant place instead of phosphoric acid—putting little of the latter in his formula, but so much nitrogen as to make its cost over three-fifths of the whole; (4), omits the plaster.

### What our Experimenters Have to Say?

The men who made the experiments last season have furnished us more light by far, on some of these points, than I have been able to find in all the data to which I can get access, from this country and from Europe. A brief outline of the results of 27 trials on corn—with nitrate of soda, superphosphate, and potash salts, each alone, two by two, and all three together, on various soils, some very good, others fair, and more very poor, in good weather and bad, from Maine to North Carolina—was given in the March article, page 91. The effects of the individual ingredients, as shown by the averages for each experiment of the increased yields on the several plots were, in brief, as follows:†

*Phosphoric acid* in 8 experiments was decidedly the regulating ingredient—the crops responding uniformly to the superphosphate, and paying comparatively little attention to the other materials. In 14 experiments it took a less important, but still prominent place. In 5 experiments it produced little or no effect, the average increase with the superphosphate on the several plots being, in each case, less than 4 bushels per acre.

*Potash* in 4 experiments, held decidedly the dominant position; in 14 others the potash salts were more or less efficient, in 9 the increase with them was less than 4 bushels per acre.

*Nitrogen* took, in no experiment, the regulating place. In 16 the nitrate of soda was more or less useful; in 11 the increase fell below 4 bu. per acre.

The phosphoric acid and potash together, No. V., (No. F, of this year's set), costing at the rate of $9.75 per acre, brought a larger yield than either of the two with nitrogen—the average with these "mixed minerals" being 43 bushels per acre. This was the most profitable fertilizer of all. The complete fertilizers, No. VI., (G of this year), containing all three, and costing $15.38 per acre, brought the largest average yield, 48¾ bushels per acre, and

* Report of the Mass. Agricultural College, 1876, p. 35.

†The experimental fertilizers, "Set A" and "No. XIII.," of last year, were the same as "No. 3" this year.

thus excelled the farm manures, which were variable in amount and quality, but brought on the average 46 bushels. The variations with the same fertilizer in different experiments were very wide.

**Does Corn Demand Nitrogenous Fertilizers?**

In the above experiments, Corn (1) responded less to the nitrogen than to either of the other elements; (2) did well with the mineral mixture, No. F, and (3) was but little helped by the addition of nitrate of soda in No. G. All of these facts imply that corn can do a good deal toward gathering its own nitrogen from the soil, and perhaps from the air. To test this question more thoroughly, a special series of experiments were undertaken by Prof. Farrington, of the Maine Agricultural College, and Messrs. Bartholemew and Sage, of Connecticut. Eighteen different fertilizing mixtures were used, each on one-tenth of an acre. The first eight were essentially the same as Set No. 3 of this year, exeept that the muriate of potash was reduced to 150 lbs. per acre. The amounts of phosphoric acid and potash were about such as occur in a crop of 50 to 56 bushels per acre. The nitrogen was applied in successive portions of 24, 48, and 72 lbs., or one-third, two-thirds, and the whole amount found in the same crop. The nitrogen was supplied in different forms, in nitrate of soda, in sulphate of ammonia, in dried blood, in a mixture of all three, and in Peruvian guano. As regards the effects of nitrogen in different forms, the Peruvian guano brought the largest increase; the mixture of nitrate of soda, sulphate of ammonia, and dried blood next; then followed in order of valuable effects produced: nitrate of soda, sulphate of ammonia, and last and worst of all, dried blood. The guano appears at a somewhat unfair advantage, however, because it had rather more phosphoric acid than the other mixtures, but this consideration is partly counterbalanced by its low cost. Estimating a bushel of corn, with its stalks and roots, to contain 1¼ lbs. nitrogen, and to be worth 80 cents, the effects of the nitrogenous fertilizers in all the experiments, general and special, may be summarized as follows, remembering that the superphosphate and potash salt, "mixed minerals," supplied the amounts of phosphoric acid and potash in a crop of 50 to 56 bushels, which would also contain about 72 lbs. of nitrogen:

| *With* | *The Crop Averaged* | *and* | *Contained* |
|---|---|---|---|
| Mixed Minerals alone. | 42.9 bushels. | 57.2 | lbs. Nitrogen. |
| Mixed Minerals, plus 24 lbs. Nitrogen..... | 48.8 bushels. | 65.0 | lbs. Nitrogen. |
| Mixed Minerals, plus 48 lbs Nitrogen..... | 50.5 bushels. | 67.3 | lbs. Nitrogen. |
| Mixed Minerals, plus 72 lbs. Nitrogen..... | 52.2 bushels. | 69.9 | lbs. Nitrogen. |

The crop was but little helped by nitrogen in the fertilizers, and evidently gathered a good deal from natural sources. This appears more clearly if we look at it another way:

| *In number of trials.* | *With Nitrogen.* Amount per acre. | Contained in Crop of | *The average increase of Corn was* | *The increase of nitrogen in the crop was* |
|---|---|---|---|---|
| 29 | 24 lbs. | 18 bushels. | 5.9 bushels. | 7.9 lbs. |
| 15 | 48 lbs. | 36 bushels. | 7.6 bushels. | 9.1 lbs. |
| 9 | 72 lbs. | 54 bushels. | 9.3 bushels. | 12.4 lbs. |

Or, from the pecuniary standpoint:

| *In Trials. Total number.* | *With Nitrogen. Amounts.* | *Costing.* | *The Nitrogen paid for itself in trials.* | *failed to pay for itself in trials.* | *The average loss in the several trials was.* |
|---|---|---|---|---|---|
| 29 | 24 lbs. | $5.50 | 8 | 21 | $0.90 |
| 15 | 48 lbs. | 11.00 | 1 | 14 | 4.45 |
| 9 | 72 lbs. | 16.50 | 0 | 9 | 8.51 |

The nitrogen increased the crop enough to cover its cost in 9 trials out of 53. The pecuniary loss was greater in proportion as more of the nitrogen was used. With mineral fertilizers alone, the crop gathered by the above estimate, on the average, 57 lbs. of nitrogen per acre. If the corn were fed out on the farm, the bulk of the nitrogen would go into the manure—according to Mr. Harris' estimate, with careful husbanding, nine-tenths. Allowing only three-fourths to be saved and used, the amount of nitrogen thus returned to the soil would at ordinary market rates cost as much as the fertilizer used for the crop.

I am too well aware of the defects of this system of experimenting, and of the danger of basing conclusions upon insufficient data, to attempt to formulate any positive theories from these experiments. It may not be amiss, however, to note some of the ways in which the experiments agree or disagree with the doctrines referred to above.

**The Best Fertilizers for Corn**

depend, first of all, upon soil and season. Leaving these out of account, and judging from the experiments: (1) We should expect the largest crops with a mixture of superphosphate, potash salts, and nitrate of soda; or better, with nitrate of soda, sulphate of ammonia, and dried blood, instead of nitrate of soda alone; or, perhaps, better still, when the cost of the materials is taken into account, with a mixture of Peruvian guano and potash salts. If the higher "10 per cent ammonia" grades of guano is used, it would be well to put in some superphosphate or dissolved bone to increase the phosphoric acid. With the lower grades, containing 4 to 6 per cent of ammonia, and 15 to 18 per cent of phosphoric acid, muriate of potash would suffice. (2) The mixture of 300 lbs. superphosphate, and 150 lbs. muriate of potash, was the most profitable one used. This, at 1¾ cents per lb., for superphosphate, and the same for the potash salt, would cost $7.87½, a low price for a fertilizer for an acre of corn.

The superphosphate brought paying returns in about three-fourths of the experiments, the potash salts in one-half, and the nitrogen none, except a few cases where the smallest quantities were applied.

**The Experiments and Mr. Lawes' Recipe.**

The mixture of superphosphate and nitrate of soda, recommended by Mr. Lawes, often did well, and often failed. It was rendered safer by the addition of the potash salts, and more profitable by omission of the nitrate of soda.

**The Experiments and the Ville Formula.**

Phosphoric acid, which Ville makes the "dominant" for corn, was often, and potash occasionally, the most effective ingredient. It is a question how often so much of superphosphate or of plaster as Ville recommends would be profitable. The idea of supplying nitrogen and potash in so costly a form as saltpeter is economically absurd.

**The Experiments and the Stockbridge Formula.**

In circumstances like those of the experiments, the phosphoric acid in the Stockbridge formula would be sometimes, the potash often, and the nitrogen generally, used at a loss. So little phosphoric acid as the formula provides would be ill advised, and so much nitrogen wasteful in the extreme.

**Formulas in General.**

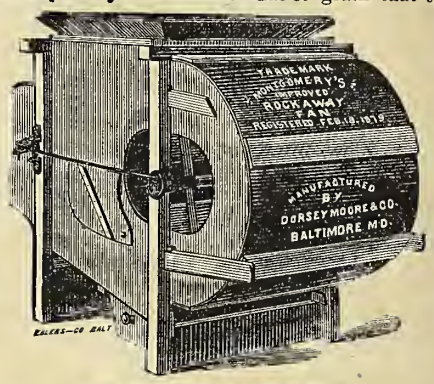
Finally the experiments illustrate two important truths:—1. A formula for any crop, to fit all cases economically, is simply out of the question, and must remain so as long as soils and seasons continue to differ. 2. With the right materials in the right places, chemical farming is profitable business.

Still, when a man does not know what his soil and crop need, it may often be better policy to buy "complete" fertilizers and pay the penalty of lack of knowledge in the purchase of superfluous material than risk the loss of his crop. Formulas are irrational, but they mark the first step in the progress toward rational manuring. W. O. ATWATER,

*Weslegan University, Middletown, Conn.*

## The Rockaway Grain-Fan.

A good fan is a good thing. By thorough work it can add to the price of each bushel of grain sent to market, and what is of quite as much importance, it can (like the boy Franklin's "grace over the whole barrel of pork"), so clean the seed-grain that there will be very few weed-seeds to be removed from the harvested crop. Nearly every farmer complains of the weeds, but few are aware of the extent to which they sow the seeds of these very weeds. In March of last year, page 108, we showed engravings of no less than ten different seeds of weeds that may be, and frequently are, sown with clover. It is the same with other seeds, and in putting in grain that has not been properly cleaned, the farmer cultivates the weeds just as much as he does his wheat or barley. We have before referred to the excellence of the "Rockaway," and a pretty thorough experience with it the past season, allows us to repeat with emphasis what has been said in its favor. The engraving of the Rockaway Fan shows one of its peculiarities—its compactness, a point second only to the excellence of its interior arrangement. This fan is by no means a new machine, as it has been before the public for over twenty-five years, and the number of successive premiums it has taken at fairs show that in whatever improvements may be made in fans, the Rockaway has kept pace with the best, and the list of its successes at fairs is one that the makers of any machine may be proud of. The test of excellence in a fan is its ability to separate seeds that are closely alike in size. A weed-seed, while its shape may be so unlike that of grain that the




THE ROCKAWAY GRAIN FAN.

two may present a very different appearance, may, nevertheless, be of so nearly the same diameter as to make it very difficult to separate the two. This is the case with the seed of the "Partridge Pea," the seed of a plant (*Cassia Chamæcrista*) so abundant in Virginia and southward, as to be the chief pest of the wheat-growers. To separate this seed from the wheat is regarded as the severest possible test for a fan, and the makers of the Rockaway put forth its ability to do this as one of its highest excellencies. Rapidity and ease of motion are here joined with thoroughness in work.

## Steam Engines for Farm Use.

If one has occasion to select an engine for agricultural purposes, he will be surprised at the great variety of style and make there is to choose from. Some establishments make only stationary, others only portable engines while many supply both kinds. Though the manufacture is a comparatively recent one, it is already a very important branch of industry, and the improvements in the direction of simplicity and safety are frequent and important. Among the oldest engines for farm use in this country are those made by the Watertown (N. Y.) Steam Engine Co. So long ago as 1850 the predeeessors of the present company received the medal of the New York State Agricultural Society, since which time the establishment has continued to increase its works and to improve its engines, both stationary and portable. Among the points of superiority claimed for this portable engine are: The engine is placed upon a substantial bed that relieves the boiler of all strain while it is working, and allows the engine to be removed and placed on a separate foundation if desired. The cylinder is so protected as to check condensation of steam within it, and to prevent loss of heat. The engine is so placed and connected that all side strain is avoided. The peculiar style of governor used upon these engines, while of the simplest construction, is claimed to be superior to every other device of the kind, and to allow of an immediate adaptation of the speed to the work; a similar superiority over the common form is also claimed for the safety valve used upon these engines. The stationary engines made by this company are furnished with all of the above-named improvements, and the boiler is constructed with special regard to safety. These are largely used for creameries, cheese factories, etc.; they are especially adapted to farm and plantation uses as well as to furnish power for small manufactories.

## Australian Merino Sheep.

The pastoral industry of Australia was well established, and had attained to great importance half a century ago. Before the discovery of gold, about 30 years ago, the commerce of that immense island consisted mainly in exporting the wool furnished by the enormous flocks of sheep. Next in importance as an article of export, was the tallow, obtained from the carcasses of the sheep, which being useless for any other purpose, were boiled down to supply tallow for European consumption. In this rude pastoral life, the settlers upon the dry and grassy plains of that country slowly but surely gained a competence, and after a term of what they considered voluntary banishment, they returned to their homes in England. The discovery of gold changed the whole order of Australian life. Where the hoof of the sheep had trod, the soil actually turned to gold, realizing literally the fancy of the poet. For it was on a "sheep run" that the first nugget, a monstrous one valued at over $20,000, was found quietly reposing on the bare ground. Previous to the golden-age, when a "run" or pasture tract, or rather the right to use it, was sold to a new arrival, and the old owner returned home with his savings, the flocks upon the land were usually "thrown in," as at that time a sheep was valued at only 25 cents. After the discovery of gold sheep become worth $2 or $3 each, and the ground over which the flocks had roamed, was leased to miners; these turned over, washed, gullied and burrowed into it, and spoiled it for pastoral purposes. The sheep interest, however, rapidly developed in new fields, and this development in part consisted in the improvement of the races of sheep. The climate being hot and dry, with a winter consisting only of a season of rains, and much similar to that of California, the Merino became the popular breed, and more especially as fine clothing wool was the most salable in the English market, to which the fleeces were sent. By importing the finest rams from Europe, chiefly from France, the Australian Merino was greatly improved, but it was only when some American rams were brought to that country that it was discovered that Australian Merinos were excelled by the American. This superiority was no mean credit to our breeders, who had long abandoned the importation of foreign blood, and for many years had steadily improved their flocks from within, with no aid from without, while the Australian shepherds had secured the best rams from the most noted French, German, and Spanish flocks. The character of the Australian Merino is much the same as that of the American, except that the latter is now running to longer wool fit for combing purposes. The samples of Australian wool shown at the Centennial Exhibition at Philadelphia, in 1876, were remarkable for their fineness of staple, and evenness and regularity of curl, and much of it was 3 inches in length. But in weight of fleece the Australian wool is surpassed by that of our American Merinos, while the American sheep itself is heavier bodied and more robust than the Australian. The product of wool in Australia is very large; the export to England is over 250,000,000 pounds annually, while the home manufacture of woollen goods is both extensive and excellent. The superiority of the Australian Merinos to those of Europe, makes it the second best variety of this breed in the world, being surpassed only by the American race, and is a curious example of the improvement of breeds by a favorable change of climate, soil, and pasture, aided by the practical skill of the shepherd. As a specimen of the Australian sheep we give the accompanying illustrations taken from photographs which recently appeared in the "Loudon Agricultural Gazette."

AN AUSTRALIAN MERINO EWE.

AN AUSTRALIAN MERINO RAM.

These are interesting, as showing how a well known breed may be modified. Climatic influences and breeding for a particular purpose, when both of these are combined, as in the case of the Australian Merino, result in an almost distinct breed.

## Among the Farmers.—No. 40.

BY ONE OF THEM.

No topic more interests farmers than the discussion of prices of farm produce and the prospects, not of crops, but of prices. High prices are always satisfactory; big crops are satisfactory too, but our rejoicing is often marred by low values when we have bounteous harvests. Here in the State of New York, Eastern Pennsylvania, and New England and New Jersey, we have all along felt so sure of

### Our Milk Crop,

sure that we could get good prices for butter, for cheese, or for milk, whether sold to go direct to the cities, or to the condensed-milk factories, to be marketed in that form, that we laughed at the thought of competition and planned and figured only to get the best possible prices—to prevent combinations of dealers and carriers against the producers, and sought to come in direct connection with the city consumers so far as was possible. That was particularly as regarded milk. As to butter and cheese, with our cheese factories and creameries we were beating the world; our butter made in June was sweet as a nut in March and May, and every year added to its perfection and keeping quality. All on a sudden we find ourselves

### Beaten by the West!

The western dairymen stand forward as equals in cheese-making, and our superiors in butter-making—beating us several cents a pound in our own market, and for all that appears, they are quite as likely to keep the position as to take one second to New York or Pennsylvania, or other Eastern State.

I stopped in at a large butter dealer's store a few days ago, and learned of two sales which had just taken place. One was of a lot of State (N. Y.) Dairy butter of excellent quality at 20 cents per pound. The other of a smaller lot of Iowa Dairy butter at 30 cents, while the best New York State creamery butter was quoted at 25 to 27. There is something tangible about this 10 cents a pound, due to superb quality, and to the fact that one lot of butter represented the whole season's make from May to October, and the other was recently made. And while this is going on, that is, while the West meets the demands of the market and we do not,

### Our Home Market is Getting Fastidious.

Consumers are discussing how milk is drawn—how it is cooled—whether the animal odors "are inherent" in the milk as it comes from the cow, or arise from uncleanliness of handling, the foul air of the stable or other contamination. The papers publish all sorts of impolitic things about the French method of shipping milk in little quart and two

quart glass jars or cans, put up upon the farm, and transported in that inconvenient and fragile form.

This delivery of milk in sealed glass cans has already grown to be quite a feature in the milk business of New York and of some other cities—and it is a question whether consumers will submit to the additional expense involved for the sake of the security offered against adulteration and uncleanliness on the part of the dealers, and against the temptation offered to servants to taken the cream off for their own table, or to drink part of the milk and fill up the vessel with water on the supposition that both the lack of cream and the thinness of the milk would be laid to the account of the milkman.

It is easy to see what the solution of the problem will be. Families who can afford to pay 10 to 15 cents a quart for milk, and 30 to 50 cents for cream, will have the privilege of doing so and getting what they pay for—pure milk of rich quality and pure cream, thick and high flavored at an expense not disproportionate to the outlay, pains, and care necessary to deliver the articles to them. Just so it is, and has been, in regard to butter. The fact that a responsible party vouches for every step in the process, and every mile of the way from the white clover and blue grass in Summer—and the sweet meadow hay and sugar-beets in winter, cropped and ruminated by healthy Jersey cows, through all the improved and well described pans and proceedings, until delivered safely and surely at the consumer's door, makes people who can afford it willing to pay 40 cents for the butter and 60 for the vouching and the fancy package and the certain and free delivery.

### Other Products of the Farm.

In flush times fresh eggs were in demand in New York; during the winter common Western and barrelled eggs sold at 30 to 36 cents a dozen at retail, and it was no uncommon thing to find one or two out of a dozen which were not above suspicion. At that time we had a quick market for all the eggs we could bring to town at 60 cents a dozen, and people seemed really delighted to get them at that price; they valued so highly the ability to eat eggs without a thought of caution. So it is with many other things, especially bacon and sausages. A friend of mine cures all his young side pork as bacon, taking out the ribs, dry salting and rubbing with sugar, and I believe pepper, at any rate with a recipe of *his own*, and likely so to remain—smoking very mildly and putting up very neatly in muslin dipped in whitewash, and has a demand for it which he can hardly supply at nearly double the usual prices. The bacon really is excellent, and fries as crisp as pie crust, while still almost as white as snow, crisper than most bacon is when fried quite brown.

### Retailing one's own Cheese.

At the Dairymen's meetings at Utica, to which I have before alluded in these columns, I met a very plain, common sense man who described how he had worked up a home demand for his cheese. His statement was to this effect: He thought he could not afford to sell the product of his dairy at what other *dairy* cheese was bringing. (The readers of the *American Agriculturist* doubtless know that in the New York market, and throughout the country too, "Dairy" butter and cheese means that made by individual farmers in distinction from "Factory" cheese and "Creamery" butter made on the co-operative or factory plan.) The cheese was most conscientiously and intelligently made, and more was sold as his which did not come up to the standard and do the maker credit. He marketed it himself at first among his friends and those to whom he was referred by them, gradually extending his circle of regular customers and having a demand each year for an increased quantity from those whom he once supplied. The result is his entire crop is taken, and he holds, or even advances, his price in the face of the general depression in values. That it was no fancied superiority which his cheese had over the common run, was made manifest by the sample which he had with him, which was rich and high flavored and delicious, and of excellent texture. Of course everybody can't do this. Everybody can't make such cheese. Very few can do it. Very few can make really "gilt-edged" butter. Yes, very few of those who think they do make it, and whose crying up of their own wares enables them to work off a few pounds of fair butter at gilt-edged prices, really know what the very best butter is. If they think they do, let them go into the market as buyers, and they will have the conceit taken out of them. The judgment of the open market is the taste of "the million," and the voice of the people is pretty near right. If a man can not tell good butter and good cheese when he sees it, is it a wonder that he cannot make it? We ought to have

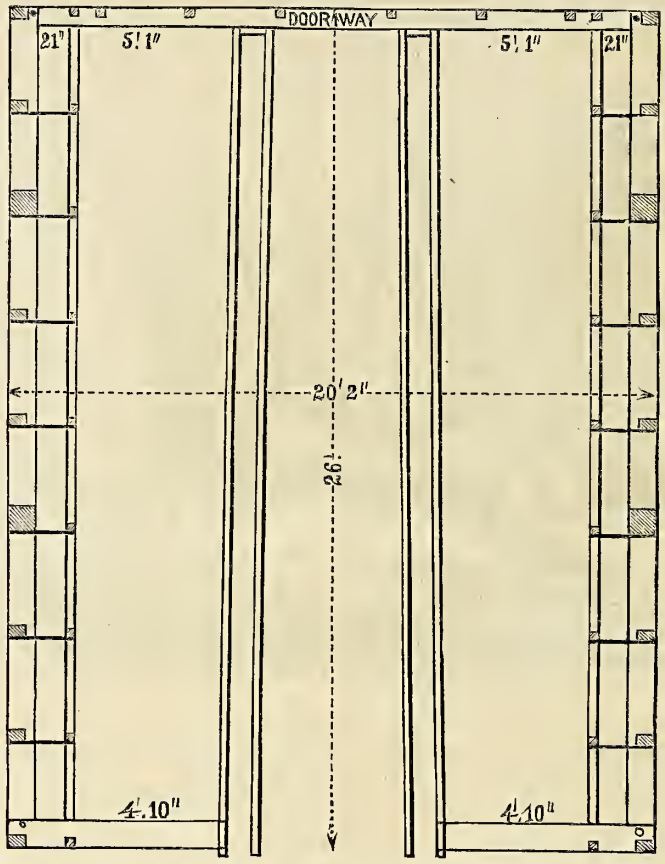



Fig. 1.—GROUND PLAN OF PART OF MR. SAMUEL J. SHARPLESS' STABLES.

### A Training School for Butter and Cheese Makers.

If one or two first rate buyers would give lessons to butter makers, simply in the art and mystery of knowing good butter and cheese when they are met with, I think the quality of our produce would be rapidly enhanced. Suppose twenty tubs of butter of all grades, oleomargarine included, and as many cheeses, were presented to the class for classification, each pupil being required to examine and grade for himself first, and then to go through the lot after the samples are properly graded by the master, according to the market, and train his own perceptions to detect the subtle differences, and, at first imperceptible, excellencies. It seems to me such a class could easily be formed, I am sure I would like to join it and think that dairyfolks, men and women, might very well spend a week or two in New York and pay $1 for each lesson, and thus surely fit themselves to make better butter and cheese than ever before. With those who attended the class there would at least be one result. They would make a good deal less complaint of the commission dealer who is unable to get as high a price for their products as they think them worth. I verily believe that this project can be carried out if the Editors of the *American Agriculturist* will consent to have the letters addressed to them, and invite correspondence on the subject.

## Stanchions for Milch Cows.

It becomes us all to submit with good grace to the inevitable; to meet without faltering that which we cannot escape, to yield, if possible, with a show of satisfaction to that which is stronger than we. So it is with cows in stanchions; their philosophy is that of necessity, and they are happy in it. We think that we would be miserable, fastened thus by the head; they are not. They are comfortable, cleanly, happy, if we can judge by their easy keeping, good yield of milk, aptitude to fatten, and their entire willingness to return to their torture after having been mercifully relieved for an hour or two. Stanchions are variously made: some are adapted to bruising the cow's knees, which is cruel; others press too tightly upon their necks. "The merciful man is merciful to his beast;" and whether a man would be counted merciful or not, it is policy for him to practice making his animals as comfortable as he can. The sills in which the stanchions are set must be low and thin. The edges of all parts brought in contact with the animal's neck, shoulders, or knees, must be rounded and smooth. The floor must be nearly level, so that cows will never slip upon it. It is preferable to have each cow's feeding-trough completely separated from those of her neighbors, for then cows are not reaching after the feed which is not their own, and made uneasy by the sight of that of others, as is frequently the case. We regard as an essential feature such length of floor that the cows *must* drop their dung into the liberal gutter behind them. In order to accomplish this, as cows vary greatly in length, the floors of different stalls must vary. It is therefore both useful and comely that this variation be uniform, and a row of stalls is at one end adapted to large cows, and at the other to small ones. Thus all cows are accommodated. Some cows lie down in stanchions as if it were the easiest, most natural and comfortable thing you ever saw; others look thoroughly uncomfortable. It is hard to judge of the comfort or discomfort experienced by our domestic animals. A cow will sometimes lie down in the pasture upon an angular stone, in a way that we should think would really hurt her, and not mind it at all—at least, hardly at all—not enough to get up and change her position. It is not necessary to give ourselves up to imagining the discomforts of cows who appear perfectly happy, live in good health, produce both calves and milk regularly and abundantly, and die full of years and of honors, and of fragrant memories. Some months ago, in one of the articles entitled "Among the Farmers," allusion was made to

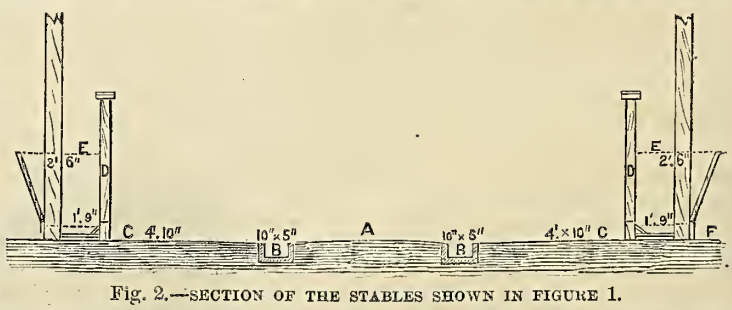



Fig. 2.—SECTION OF THE STABLES SHOWN IN FIGURE 1.

### Mr. Samuel J. Sharpless' Cow Stable.

He has kindly furnished us with drawings which

enable us to satisfy the many inquiries elicited by the article alluded to. The plan, figure 1, is a ground plan of part of the stable, showing the two rows of stanchions, in which the cows stand facing in opposite directions out from the central passage way, and figure 2 is a cross-section of the same. Eight cows stand on a platform 26 feet long, giving to each cow 3 feet 3 inches. A third row of cows in similar stanchions faces those on the left

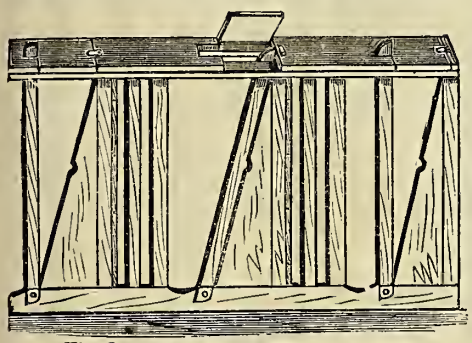


Fig. 3.—STANCHIONS OPEN AND SHUT.

with a passage 5 feet wide between them, while upon the right is a row of roomy loose boxes used as lying-in stalls. The cows in stanchions stand upon platforms varying in the extreme from 4 feet 10 inches to 5 feet 1 inch in width, and having a slope to the rear of 1 inch in five feet. Behind the cows is a gutter (*B*, fig. 2) 10 inches wide in the clear, having a sloping bottom, being 3 inches deep at the beginning and 8 inches at the lower end. The passage-way (*A*, fig. 2) between the gutters is a cement grouting, smooth enough to be cleanly, and rough enough for good foothold.

Figure 3 is a diagram showing three of the stanchions, two of which are closed and one is shown open—the trap lifted to show construction. The sill in which the stanchions are set is 3 inches thick and 6 inches high. There are three fixed stanchions and one movable one. They are 1½ inch thick and 4 inches wide. When closed, the movable one is held in position by a "trap," as shown. This being lifted, the stanchion, having the pin upon which it is hinged on one side of the center, falls open of its own weight. After the cow puts her head through, the stanchion is

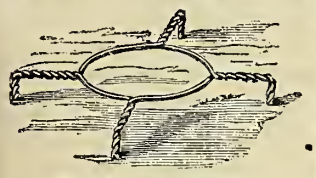


Fig. 2.—WIRE REST.

placed erect, the trap, being lifted by the motion of the stanchion, falls behind it and thus locks it in place. The space of 12 inches on the right of the movable stanchion is filled by a board. The whole hight of the stanchions is 4 feet 6 inches.

The manger (*E*, fig. 2) is 21 inches wide at the bottom, 30 at the top and 2 feet high, and each one is separated from the others by cross-partitions. It would be very easy to so connect the traps to a rope, that all could be opened at once by a single pull. This seems very desirable in case of fire or other emergency, and could be so arranged as not to interfere with the ordinary working of the stanchions.

## A Few Words On Under-Draining.

BY JOSEPH HARRIS.

[The following is a portion of a letter to a gentleman in Mass., who inquired of Mr. Harris as to draining. ED.]

The truth is, all soils must be drained before they can be cultivated to the best advantage. And all a farmer has to do is to find out whether they are or are not already drained. Some soils are drained by resting on a porous rock, or on gravel, or on porous sand. The retentive clay soil at Rothamsted, where Mr. Lawes has made, and is still making, his celebrated experiments, is drained by resting on the chalk. On my own farm I have put in several miles of under-drains, and all except one have paid me well. I cut all my drains, with this one exception, in the winter and spring—principally in the spring, when the land was full of water. By the time we had got down three feet, as a rule, there was so much water entering the drains that we had abundant evidence that we were not working in vain.

One under-drain I cut in the summer, where I *thought* it was needed, but this drain has never discharged water enough to pay, so I advise Mr. R. to cut his ditches in the spring, say in April, and if he finds plenty of water he will know that he is not wasting his time. And furthermore, if he finds plenty of water, he will soon learn how to lay the tiles properly. All he has to do is to cut the ditches in such a way that the water will drain off; he then has simply to lay the tiles so that they will carry off the water, and when they are laid cover them up.

I have said, I always found plenty of water in the land in the spring. But once I dug a drain through a basin on high land that I knew was wet. It was in May and the weather was hot and the soil a stiff clay, and very dry and hard. The men urged me to give it up. And in fact, one warm day they came home about ten o'clock and said, "It was no use digging. There is no sign of water and the land is so hard that we cannot make wages."—I replied, "There is water there, *somewhere*. The land is wet in the spring and as hard as a brick in summer. It needs draining and I will at least finish the drain marked out."—They went back, grumbling, and in less than an hour struck a spring that threw up a stream two or three inches in diameter and several inches high, and it continued to run at this rate for several days and then ceased. But it discharges a large quantity of water every spring, and I have no doubt drains several acres of land before too wet.

## Hints and Helps for Farmers.

RESTS FOR MILK STRAINERS.—When milk is strained into shallow pans, the strainer is generally placed in the pan, and rests in the milk. This is objectionable, and may be avoided by using frames which rest upon the tops of the pans, and upon which the strainer may be placed. At figure 1 is shown a rest made of strips of wood, and at figure 2 one of wire. A metal frame is better than a wooden one, as it will not absorb milk and become tainted. At *a*, fig. 1, is shown one of the wires which are attached to the frame to form the rest.

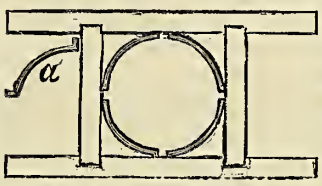



Fig. 1.—STRAINER REST.

ARRANGEMENT FOR FEEDING PIGS.—The low price of pork renders it necessary to feed pigs as cheaply as possible. Whole corn is a costly feed, and is not very healthful for young pigs. They thrive best on sloppy food in which milk, whey, bran, middlings, or corn meal can be mixed. Where milk or whey is not to be spared, a mixture of bran and meal with water will make a good food. This kind of slop may be prepared as follows: A large hogshead is sunk three-fourths of its depth in the ground near the pens. This is so arranged (see figure 3) that the slops and waste milk or whey from the dairy and kitchen may be run into it through a drain pipe. For a large hogshead or tank holding 100 gallons, 4 bushels of mixed bran or middlings and meal may be thrown in, and the vessel filled with water. The mixture is stirred, and in a short time ferments, when it is ready for use, and may be lifted with a scoop into the troughs. As the supply diminishes, more water and feed may be added from time to time to keep it replenished.

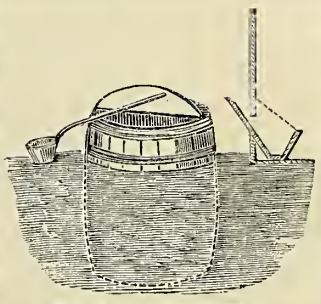


Fig. 3.—PIG-FEEDING.

WIRE FENCE TIGHTENER.—A wire fence needs frequent drawing up, or it sags and becomes useless. The ordinary method of tightening, by means of a species of winch and roller, is costly, inconvenient, and ineffective. The method used by the telegraph companies, however, is, as may be expected, a most effective and a cheap one, and may be applied to ordinary purposes with great ease, one set only being required for one farm. It consists of a pair of grip-tongs and a set of small blocks and tackle, and is used as shown at figure 4. The tongs can be made by any blacksmith, and the blocks and tackle can be procured at any shop where tools are sold. A hook of iron is used to attach the block to the post, and as the wire is drawn up, the free end of the loose rope may be given a turn around the post while the staples are driven tight to hold the wire. This method is simple.

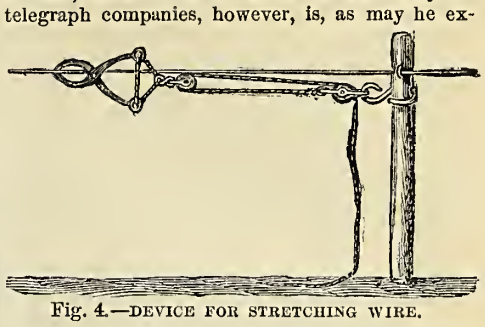


Fig. 4.—DEVICE FOR STRETCHING WIRE.

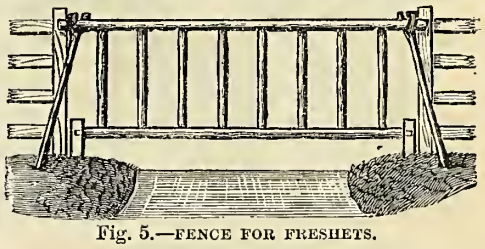


Fig. 5.—FENCE FOR FRESHETS.

A FENCE FOR FRESHETS.—A panel of fence that offers no obstruction to a swollen stream may be made as follows: A short post is set in each bank, rising only one foot above the ground and near to the post of the permanent fence. A two-inch hole is bored in each of these short posts on the side next to the water. A piece of three-inch square timber, or a round pole, is fitted at the ends into these holes, so that it will turn easily. A few upright boards are nailed to this bar and to a top-rail, as shown in figure 5, so that the top-rail rests against the permanent fence posts on the side down the stream. The panel is held in place by two props, as shown, and will give way when the high water presses against the fence; it then lies flat while the current flows over it. When the water subsides the panel is set up and propped as before.

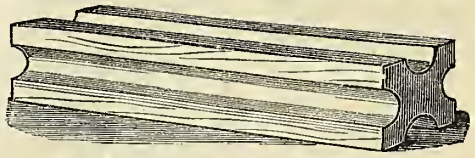


Fig. 6.—BLOCK FOR LEVELING DRAINS.

LEVELLING DRAINS.—"N. T. N.," Karnten, Austria, sends a sketch and description of a method of levelling drains. He chooses a straight piece of timber or scantling, and hollows it on each side, as shown at figure 6. The hollows form water channels, and when the timber is placed in a drain, and a small quantity of water is poured into it, the direction of the slope and the velocity of the current can be readily ascertained. This contrivance may be made very useful in laying out drains and irrigating channels.

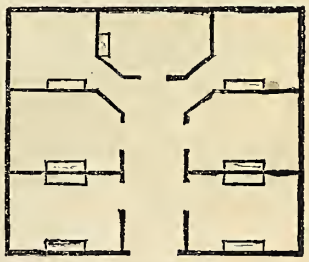


Fig. 7.—CALF PENS.

CALF PENS.—Where calves are raised it will be found very convenient to provide separate pens for them. This will be the more necessary where winter dairying is practised and cows of extra

quality and value are kept. The calves are then too valuable for veal, and the heifers are raised on the skimmed milk. A calf pen may be provided at little expense. The writer has made two pens during the past winter out of common hay or straw barracks which were in the yard near the barn. These were enclosed 8 feet high, and a floor of rails was laid upon the girts to hold the hay or straw. The interior was then divided as shown in the plan at figure 7, and the pens were separated by partitions and doors, as at figure 8. In these pens the calves were kept dry, warm, and clean, and have

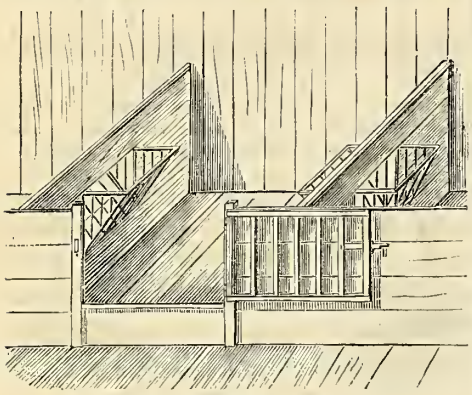


Fig. 8.—PENS FOR CALVES.

thrived better than under any previous arrangement. The pens, if 6 feet square, or 6 x 8, will give ample room for a calf to frolic about and keep itself warm by the exercise. A small hay rack and a little feed box may be provided in which a small supply of hay and feed may be furnished.

A SIMPLE FILTER.—Another European correspondent sends a plan for making a water filter. He provides two common flower pots, one larger

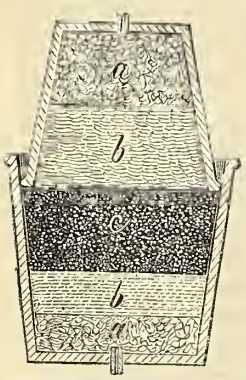



Fig. 9.—SECTION.

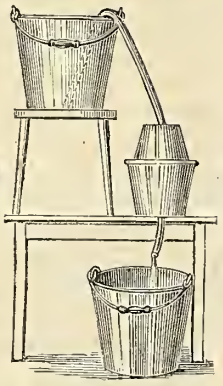


Fig. 10.—FILTER AT WORK.

than the other. Some coarse washed gravel (*a*, fig. 9) is placed at the bottom of the larger one, upon this a layer of fine washed sand, *b*, then a layer of broken and washed charcoal, *c*; the smaller pot has a layer of gravel and sand arranged in it, as shown in the engraving, and is then inverted over the first pot; pipes are arranged to carry the water in and out, as may be needed. If a pail of water is placed so that a small bent lead pipe may be arranged as a siphon (as shown at figure 10), a quantity of water may be run through the filter in a few minutes at any time it may be wanted for use.

A HAY-FEEDING RACK.—"A Subscriber" sends a sketch of a rack for so feeding hay that the cows or cattle cannot waste it. It consists of a frame closed in with fencing boards, leaving a space in which the cattle can put their heads to reach the hay. The hay is thrown into a V-shaped rack inside, as shown in figure 11, and whatever hay is pulled out from this by the cattle, falls into the outside rack and is saved from trampling and waste.

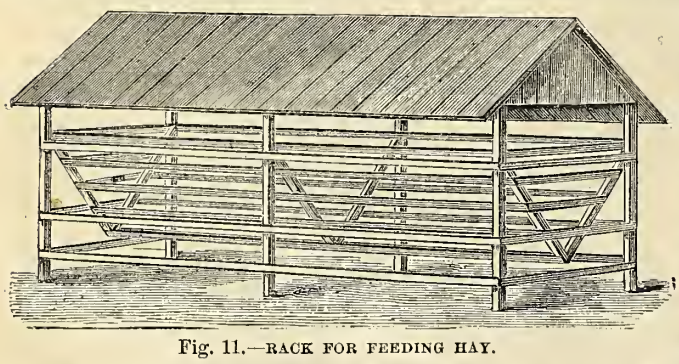
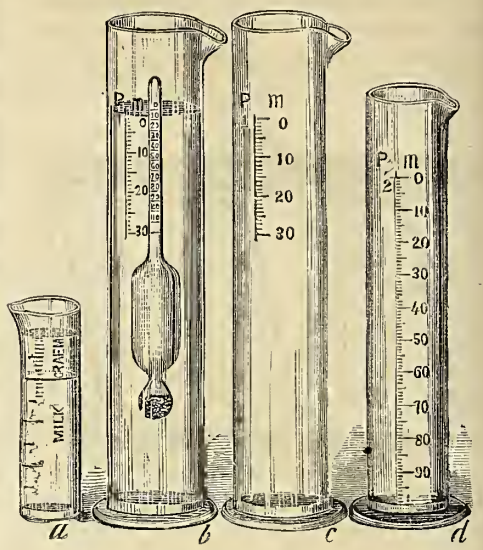


Fig. 11.—RACK FOR FEEDING HAY.

## Testing Milk and Measuring Cream.

It is very desirable to know which is the best cow in the dairy, and which is the worst; because unless actual tests are applied, the cow which the owner considered his best, may really be one which does not pay for her feed and care. It is not the quantity of the milk alone, but the quality, together with the quantity, which is the true test of value, and this cannot be ascertained without some accurate means of judging, such as are supplied in the shape of test tubes, cream gauges and lactometers. The tubes are small glass measures about five inches long, one inch in diameter, with a lip at the top as shown at *a*. The tubes may be marked with a three-cornered file, in inches, half inches, and tenths, if desired; but this is not necessary unless the proportion of cream given is to be ascertained. This, however, is useful when the value of different feeding stuffs is in question, as in a recent case with the writer, when in a test of the value of palm-nut meal, it was found to increase the yield of cream from 1 inch in 4 of milk to 1¼ inch during two weeks' use of it, the increase being steady and gradual for the whole time. In the illustration given, one tube is shown at *a*, in which the cream stands at one inch. In setting milk for a test in this way, each cow's milk to be tested is stirred immediately after milking and straining, and poured into separate glasses, exactly up to the 4-inch mark, and without any foam upon it. The samples are then set away in the usual place for the milk, and under precisely the same conditions as to temperature, etc., as the rest.

To test the quality of the milk itself after the cream has been removed, or to discover the quantity of water contained in the milk, whether it be naturally present or by adulteration, three or more glass jars, one for each cow to be tested, and a lactometer, are used. In using the test-jars, the largest ones, *b*, *c*, are filled with milk, as before described for the small test-tubes, up to the mark 0. This is 10 inches from the bottom. Each mark upon the jar represents 1 per cent, and the quantity of cream which rises is thus shown. To test the milk itself, the cream is removed carefully from the jars, and the smaller jar (*d*) is filled with water up to the mark 0. This jar is marked with 100 lines, dividing its length up to 0 with 100 equal spaces; each one, therefore, represents 1 per cent. The lactometer is then inserted carefully—because it is fragile and should be carefully handled—into each of the milk jars in succession, and the depth to which it sinks in each noted (sec *b*). The jar in which it sinks the deepest is the poorest milk, and the lactometer may probably mark 26, 28 or 30 on the scale, showing the specific gravity to be 1,026, 1,028 or 1,030 to the 0 of the scale, representing 1,000, which is the specific gravity of water, or rather the arbitrary point given to water as the fixed standard from which the specific gravity of all other liquids is measured, pure water being generally accepted as the base or key which regulates all other liquids as to the scale of their relative weight. If a sample of milk marks 1,028, or lower, it is too poor and watery to be satisfactory or profitable, and if one marks 1,030 or over, it is as good as can be expected. If it is desired, in case of suspected adulteration, to find the quantity of water that has been added to the milk, the suspected milk is put into one jar, as before mentioned, and milk known to be pure is put into the other one. After the cream has been removed, the lactometer is inserted into each sample, and the depth to which it sinks in each is noted. If the suspected milk marks lower than the other, adulteration is indicated, and the proportion of it may be known by adding to the pure

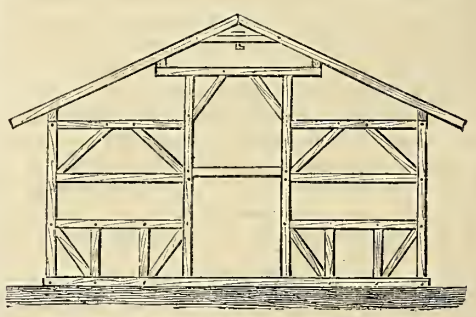



GLASSES FOR TESTING MILK.

milk as much water from the per cent glass which has been previously filled up to 0, as will bring the lactometer to the same depth in it as in the other one. The percentage of water added will be shown by the marking on the per cent glass, and this will show the extent of the adulteration.

## Barn Without Cross-beams.

Since the use of the horse hay-fork has become common, a change has been made in the construction of barns. These buildings are now required to be free from obstructions overhead, so that the movable fork can have freedom to act in any part of the barn. Modern barns are so designed as to cover as little ground space as possible, thus saving cost in the roof, to be high rather than spacious, and to be so arranged that there shall be no cross-beams to interfere with the run of the hay-fork with its load from end to end. Those who are interested in designing or constructing barns are, therefore, obliged to take this into account in making plans. A frame for a barn, designed with this end in view, is given in the accompanying illustration. It is intended to have ranges of stables, or stalls for cattle below, with a wide floor between these, to be used for the purpose of feeding and preparing food. Above these are the bays for storing hay and grain, on either side, and the frame



SECTION OF BARN WITHOUT CROSS-BEAMS.

is so arranged that sufficient strength and stiffness is given to it by bracing in each bent. The bents are connected as usual on the outside, by the plates and girts, and on the inside by the beam which sustains the floor above the stables, strongly braced to the posts, and by purline plates upon the inner posts; cross-beams run from one purline plate to the other, and the frame for the hay-carriage is suspended to these, as shown in the design. This mode of framing gives great strength without any interfering timbers inside to come in the way of unloading hay or grain, as the bays are entirely open from the lower beams up to the purline plates.

## Pens and Yards for 150 Hogs.

For answer to several inquiries for a plan of pens and yards for keeping about 150 hogs in a convenient and healthful manner, we offer the following. This is an enlargement of a smaller system

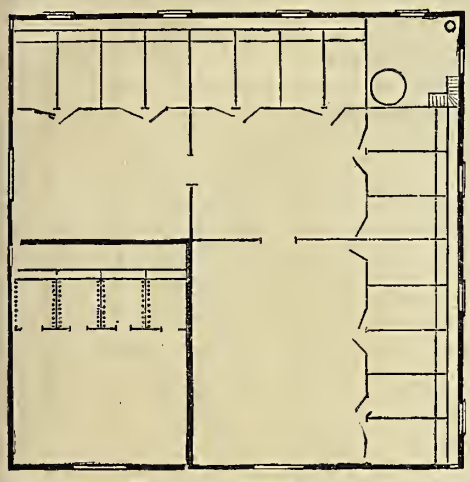


Fig. 1.—PLAN OF PENS.

of pens and yards which have beeu found satisfactory in every respect, especially so far as regards saving of labor. The pens are built in a range on each side of a central feed-house, shown at the corner of figure 1. This house is a two-story building. In the upper part feed is stored, to be cooked or prepared on the lower floor. A stairway in one corner leads to the upper story; opposite to the stairs, and at the right of the doorway, is a pump connected with a cistern which receives all the flow from the roof. The water is shed from the rear of the roof, so that none escapes into the yard. A hose is connected with the pump, which serves to convey water into the feed-troughs in both wings of the pens, for cleansing them and to supply the animals with drinking water. Opposite to the pump is the boiler or the mixing vat. As a boiler will be found indispensable at times, one should be provided at the outset, as it may be used for soaking or otherwise preparing food when not needed for heating purposes. A passage-way leads on either hand from the feed-room down the range of pens, as shown. The arrangement of the pens is illustrated at figure 2; the passage-way is at *a*, the feed-trough with spout at *b*; the troughs are protected by cross strips fastened from the partition wall to the edge of eaeh, as shown by the dotted lines, so as to prevent the hogs from lying in them; at *c* is a sliding door, by which access can be gained from pen to pen all through the range when necessary for the purposc of changing or otherwise managiug the occupants; at *d* is a slatted ventilator fixed in the wall over each door, also shown at figure 4. The yard and pens shown in the left-hand lower corner of figure 1 are for brood sows with pigs, which are kept separate from the rest of the herd. The pens are arranged as the others, with the addition of safeguards for the young pigs placed around the walls, about eight iuches above the floor and six inches from it, and attached to it by means of iron straps (see figure 3). Thesc are to prevent the pigs from being crushed by the sows when they lie down, as is often the case when no protection is furnished. At figure 4 is seen the elevation of one wing of the range with the feed-house. The shed is made from 12 to 16 feet wide, 12 feet high in front and 8 feet in the rear. Each pen should be at least 8 feet wide, which would give from 60 to 100 square feet, accommodating 5 or 6 pigs; sheds 100 feet long, with yards covering the included ground, would give room for a herd of 150. The front doors of the pens are made double, shutting against each second post, and opening from each other. One fastening answers for all the four doors; this consists of a semi-circular picce of hard-wood plank, which turns on a bolt, as shown at figure 5. When at rest it falls so as to fasten the four doors, and can be turned either way in an instant to open either pair. This should be secured firmly with a strong bolt with a large head. The floors of the pens may be made of hydraulic lime concrete, thoroughly saturated with gas tar. Such a floor is always dry, clean, and perfectly impenetrable either by vermin or by the swine. An occasional dressing of hot gas tar will keep lice and fleas at a distance, and thus promote the health and growth of the herd. Another method of making the floor, which the writer has found excellent, is to use double hemlock plank, laid so as to break joints, and saturated with hot gas tar. This is water and vermin proof, and also saves all the liquid manure. To do this most effectively, the floor is sloped for two or three inches, and a slightly hollowed gutter conveys the drainage into the outer yard, which should be paved with cobble stone or cemented, if possible, or otherwise well bedded with litter or other absorbents. The best absorbent is dry swamp muck; when this can not be provided, hard-wood sawdust, sand, dry earth,

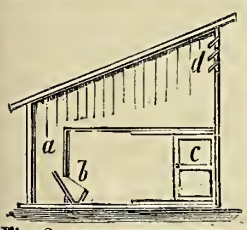



Fig. 2.—SECTION OF PEN.

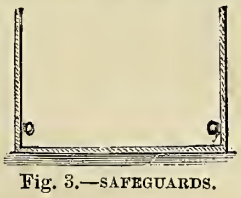


Fig. 3.—SAFEGUARDS.

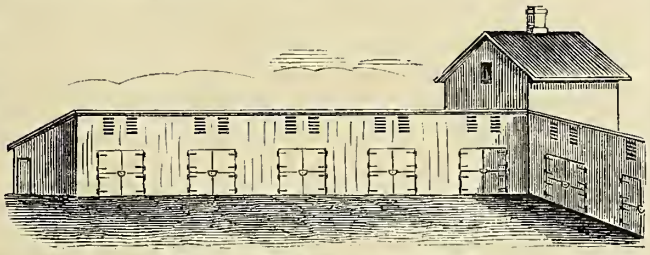


Fig. 4.—EXTERIOR VIEW OF PENS.

or litter from the stables, may be kept in the yard; this will be turned over and well mixed.

## Prepare for Fodder Crops.

Something to help out the pastures is necessary in all kinds of farming where cows are kept. Under present circumstances it does not pay to pasture during the whole season. This occupies too much

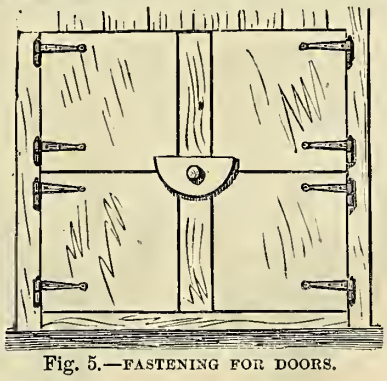


Fig. 5.—FASTENING FOR DOORS.

land, upon which the present onerous taxes alone will eat up all the profit. Five to seven acres can not now be spared to furnish feed for one cow. One acre may be found to be sufficient by good management and the use of fodder crops, to be cut green. Of these, a succession of two, or even three, may be grown during the season upon the same ground. For instance, fall-sown rye may be cut from May to June; by the use of a swivel plow a strip from which the rye has been cut may be plowed and sown to oats, oats and peas, oats and barley, or peas alone; but the mixed crops will be found the most profitable. The oats first sown may be cut early in July; and millet, sweet corn, or roots, may be sown for use in September. The ground cleared of this last crop may be sown to rye or wheat again, and so the rotation may be kept up. The produce of one acre thus managed will be surprising, and the manure made by feeding it to cattle, sheep, pigs, and horses, will be sufficient to keep the soil in a rapidly improving condition. It will be seen that no seed is produced, and the exhaustion of the soil in this respect is avoided. This, too, enables the soil to reproduce year after year the same crops without deterioration. An important point to observe is to avoid sowing or planting too thickly, in order that the fodder may be properly matured, perfect in color, and well supplied with nutritive matter, in place of mere water, as is the case in the very heavy yield produced by close planting on rich soils; and at the same time to feed with it some rich concentrated food, such as cotton seed meal, by which the laxative effect of succulent provender is prevented, and at the same time the manure—and consequently the soil—is enriched.

## Composition and Value of Indian Corn.

BY PROF. W. O. ATWATER, WESLEYAN UNIVERSITY.

The following analyses give an idea of the composition of several varieties of corn and cobs:

| KINDS OF CORN. | Water. | Ash. | ORGANIC SUBSTANCE. Albuminoids. | Woody fibre. | Carbohydrates | Fats. |
|---|---|---|---|---|---|---|
| 1. New England Yellow, 8-rowed. | 10.5 | 1.3 | 9.7 | 2.4 | 71.6 | 4.4 |
| 2. New England Yellow, 8-rowed. | 15.1 | 1.4 | 10.0 | 1.2 | 67.0 | 5.3 |
| 3. New Engl. "Golden," 8-rowed. | 12.5 | 1.6 | 10.3 | 1.4 | 69.4 | 4.9 |
| Average of Nos. 1, 2 and 3..... | 12.7 | 1.4 | 10.0 | 1.7 | 69.3 | 4.9 |
| 4. King Phillip or Rhode Island.. | 9.8 | 1.6 | 11.9 | 2.2 | 70.1 | 4.5 |
| 5. Mass. White Flint..... | 10.2 | 1.4 | 9.2 | 1.5 | 74.3 | 3.4 |
| 6. Mass. Red Flint..... | 12.0 | 1.1 | 12.1 | 2.0 | 69.5 | 3.4 |
| 7. Early Dutton..... | 8.1 | 1.5 | 9.6 | 2.5 | 72.6 | 5.7 |
| 8. Stowell's Evergreen Sweet.... | 10.9 | 1.9 | 11.1 | 2.6 | 65.9 | 7.7 |
| 9. Burr's Sweet..... | 10.7 | 2.2 | 11.7 | 4.9 | 62.7 | 7.8 |
| Average of Nos. 8 and 9..... | 10.8 | 2.1 | 11.4 | 3.8 | 64.3 | 7.7 |
| 10. Western Yellow..... | 13.9 | 1.3 | 8.8 | 1.6 | 81.9 | 3.9 |
| 11. Western Yellow, Kansas..... | 11.3 | 1.1 | 8.8 | 1.3 | 72.9 | 4.6 |
| 12. Western Yellow, Illinois..... | 13.6 | 1.4 | 9.2 | 3.1 | 69.1 | 3.6 |
| Average of Nos. 10, 11 and 12.. | 13.0 | 1.2 | 8.9 | 2.0 | 70.8 | 4.0 |
| 13. Southern White, large 16-rowed | 11.6 | 1.5 | 10.6 | 2.7 | 69.6 | 4.1 |
| 14. Southern White, ordinary..... | 13.8 | 1.3 | 8.9 | 0.9 | 71.1 | 4.0 |
| 15. Cobs from N. E. Yellow, No. 2. | 11.5 | 1.3 | 1.2 | 38.3 | 47.6 | 0.1 |
| Cobs, German (Wolff's Tables) | 14.0 | 2.8 | 1.4 | 37.8 | 42.6 | 1.4 |

Nos. 3, 5, 6, 9, 11, and 12, were analyzed by Mr. S. P. Sharpless; No. 13, under direction of Prof. S. W. Johnson; the rest by the writer and his assistants.

Taking the results of German experiments for digestibility and the valuations previously given, as a basis, the digestible ingredients and valuations of the kinds of corn above named will be as follows. The digestibility of cobs has not, so far as I know, been tested. The proportions are, as assumed by Wolff, evidently from analogy with materials that have been determined:

| KINDS OF CORN. | Number of Samples. | ORGANIC SUBSTANCE DIGESTIBLE. Albuminoids. | Carbohydrates. | Fats. | Nutritive Ratio. | MONEY VALUE. Dollars per 100 lbs. | Comparison with Meadow Hay=1.00. |
|---|---|---|---|---|---|---|---|
| | | p.c. | p.c. | p.c. | 1: | $ ct | |
| N. E. Yellow, 8-rowed, av'ge.. | 3 | 8.4 | 65.8 | 3.7 | 8.6 | 1.09 | 1.70 |
| King Phillip or Rhode Island. | 1 | 10. | 66.7 | 3 4 | 7.5 | 1.18 | 1.84 |
| Mass. White Flint..... | 1 | 7.7 | 70.3 | 2.6 | 9.9 | 1.00 | 1.56 |
| Mass. Red Flint..... | 1 | 10.1 | 66.0 | 2.6 | 7.2 | 1.07 | 1.67 |
| Early Dutton..... | 1 | 8 1 | 69.2 | 4.3 | 9.9 | 1.16 | 1.81 |
| Sweet, average..... | 2 | 9.6 | 61.8 | 5.9 | 8.0 | 1.19 | 1.86 |
| Western Yellow, average..... | 2 | 7.5 | 67.3 | 3.1 | 10.0 | 1.04 | 1.63 |
| Southern White, ordinary..... | 1 | 7.5 | 67.1 | 3.1 | 10.0 | 1.06 | 1.06 |
| Cobs from N. E. Yellow..... | | 0.5 | 43.0 | 0.0 | 86.0 | .40 | 0.64 |
| Cobs, German—Wolff's Tables | | 0.6 | 41.7 | 0.4 | 71.2 | .40 | 0.64 |

### Eastern vs. Western Corn.

These figures confirm the current opinion of farmers that eastern corns have a higher nutritive value than western, though the difference is less than is frequently assumed. The sweet corn leads; then come the Early Dutton and Rhode Island, which, however, appear to better advantage, because of the dryness of the samples, then the New England Yellow or Canada, the Southern White, the Western Yellow, and lowest of all, the Massachusetts White Flint. But it must be borne in mind that the number of samples is small, and further analyses may give somewhat different results.

### The Nutritive Value of Cobs

in the table is over one-half that of corn, higher

than most farmers would put it. As I have said, accurate experiments to test their digestibility are still lacking. The proportious assumed are such as seem probable from experiments with other food. It will be noticed that the value is almost entirely in the carbohydrates, there being extremely little of albuminoids and fats, the most important ingredients. Analysis and experience both indicate that fed alone they would barely keep an animal from starving. But fed with other materials to furnish what they lack, they must be valuable. It would be very foolish to make a pair of boots all of neck or split leather; but with good materials for soles and fronts, the poor leather will do for backs and linings, and it will be far better economy to put it there than to throw it away. A great many farmers practically recognize this principle in feeding corn and cobs together.

**Western Corn Shelled vs. Eastern with Cobs.**

No. 2 was a good fair specimen of eight-rowed New England Yellow corn, grown in 1877, on the farm of Mr. C. Sage, of Middletown, Conn. The ears May 1, 1878, gave 16½ lbs.=(1/6) cobs per 100 lbs., which is probably a fair average for well cured corn of that kind. The composition was just about equal to the average of the samples of eastern corn, Nos. 1 to 7 in the table. Nos. 10 and 14 were taken at the same time from the store of Messrs. Coles & Atkins, Middletown. No. 10 weighed 53½ lbs. per measured bushel; cost 62½ cts. per bushel of 56 lbs.; was pronounced a very good specimen of Western Yellow corn, and agrees in composition with the average of the three samples of that kind. No. 14 weighed 54 lbs; cost 70 cts. for 56 lbs., and was likewise a very good quality of Southern White. 100 lbs. of ears of Mr. Sage's corn, and 100 lbs. of each of the others shelled would compare as below.

| | Digestible.— Albuminoids. Lbs. | Carbohydrates. Lbs. | Fats. Lbs. | Nitrogen. Ratio. | Valuation. |
|---|---|---|---|---|---|
| N.E. Yellow Corn 83⅓ lbs. | 7.0 | 52.8 | 3.4 | 1:89 | $ .93 |
| N.E. Yellow Cobs 16⅔ " | .1 | 7.1 | — | 1:71.0 | .07 |
| N.E. Yellow Ears 100 " | 7.2 | 59.9 | 3.5 | 1:92 | 1.00 |
| W. Yellow Corn 100 " | 7.4 | 67.8 | 3.0 | 1:10 | 1.05 |
| Southern White 100 " | 7.5 | 67.1 | 3.1 | 1:10 | 1.06 |

That is to say, by the above figures, 100 lbs. of Mr. Sage's corn in the ear, with 83⅓ lbs. of corn and 16⅔ lbs. cobs, contained a trifle less nutritive matter than 100 lbs. of the Western Yellow corn, for which his neighbors were paying $1.07, or the Southern White which cost $1.25.

## The Varieties of Durra or Sorghum.

In February, 1877, we gave an engraving of one of the common forms of *Sorghum vulgare*, and a rather full account of the plant and its uses. Many common names have been given it, and it was suggested that "Durra" be adopted for the plant, as it is brief, and the name by which it is generally known throughout the East. In November last, the Drooping Sorghum was figured and described; this, though it has been regarded by some botanists as a distinct species, and called *Sorghum cernuum*, appears to differ from the other only in the nodding cluster of grain, which, instead of being erect like the other, when ripe points directly downwards, the stalk just below the cluster being bent at a sharp curve. This is the grain that has been sent out under the deceptive and absurd name of "Pampas Rice." These are but two forms of a plant that has been used to some extent in the Southern States for forage, as it allows of repeated cuttings, and in the aggregate yields a large amount in a season. Its grain affords the principal food of many Eastern people, as in Syria, where, as in Nubia, there is scarcely any other grain cultivated; it is extensively grown in parts of India, and in Northern China, where it is cheaper than, and largely takes the place of rice. The cultivation of Durra for its grain has not been attempted to much extent in this country—at least not in the older states. While abundantly productive, the grain is not very nutritious as compared with other grains, though it has been commended as a cheaply produced food for animals. The grain has been experimented with to some extent on the Pacific Coast. Though the people there have the finest wheat in the world, a change, even to a less nutritious flour, is pleasing, and that from Durra is acceptable as a variety, just as Buckwheat flour is often used. A plant that has been so many centuries in cultivation under a variety of conditions, will naturally present numerous varieties, just as Indian corn and other cereals have done. California being in direct communication with eastern countries, will, as a matter of course, receive their products; several forms of the Durra have already been introduced there, and we may expect others to come. Mr. William H. Carson, seedsman, of this city, has sent us heads of three well marked varieties received from California, which he offers to those who wish to test their value. While the heads of these have a strong general resemblance to those of the two forms we have figured, the grain is quite different in size and appearance. One of these comes labelled as the

Fig. 1. Fig. 2. Fig. 3.

VARIETIES OF DURRA.

BROWN EGYPTIAN CORN; this has very large heads which curve over like those of the Drooping Sorghum, figured in November last; the grain is not so large as in that, and is of a light chestnut color. It is stated that this variety in California has yielded 200 bushels of cleaned grain to the acre.

WHITE EGYPTIAN CORN.—This variety also has drooping heads, which are broad in proportion to their length, and very productive of seed, a pound of clean seed is reported to have been obtained from a single head. The seed is slightly larger than in the foregoing and of a dull white.

CHINA CORN is the name given to a third variety; this has long, narrow and erect heads, smaller than in either of the others, while the grain is larger, and of a clear pure white, presenting an attractive appearance; indeed, so white are they, that the heads look as if they had been bleached. To show the relative size of the seeds, a few grains each are given of the exact real size, in the engraving, fig. 1 being the Brown, fig. 2, the White Egyptian, and fig. 3, the China Corn. These two white varieties are said to make a very fine flour, which, when thoroughly bolted, is used for making muffins and other cakes that are made very light and eaten hot, and the flour is highly praised by those who have eaten it thus cooked. The whole ripe grain is cooked like rice, and it is also eaten before it is ripe, prepared after the manner of green corn, when it is said to resemble chestnuts in flavor; the two last named varieties being preferred for this purpose.

**A Cat's Paw Knot.**—To prevent the end of a rope from unraveling the strands may be fastened in a manner known to sailors as a "cat's paw." This is done as follows: One strand is bent down

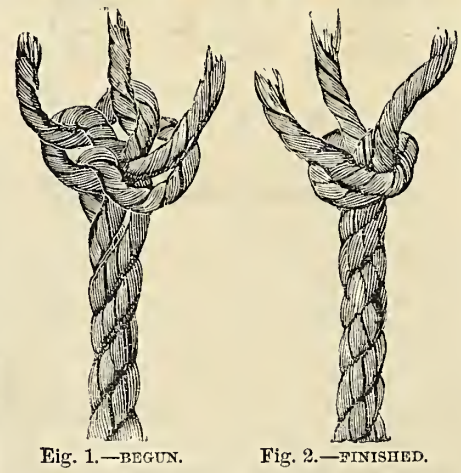


Fig. 1.—BEGUN. Fig. 2.—FINISHED.

as at figure 1, the second strand is bent over the first, the third is bent over the second one and then passed under the first one, which locks the whole and makes it a tight knot, as seen at figure 2. The ends of halters, hay ropes, and other ropes used about a farm, should always be thus secured.

## Concentrated Foods.

Concentrated foods for cattle may now be purchased in the markets at moderate prices. For many years past the large amount of cotton seed yearly produced has been either in great part wasted, or has been sent abroad to enrich the farms of our foreign rivals. An entire cargo of 900 tons of cotton-seed meal left our shores recently, and the shipment of smaller quantities is of daily occurrence. We have use at home for every ton of this meal, which can be procured now at a price very little more than that of corn meal or bran. At this price it is a very cheap food, and well worth attention for its value in enriching the manure. Palm-nut meal is another rich concentrated food, especially for fattening animals, and for cows kept for butter. A sample recently tested gave 13 per cent of fat, and in feeding it the cream was notably increased in quantity. As in the case of all concentrated articles, these foods should be used with caution, and at first only small rations should be given, one pound at a feed, for instance, gradually increasing up to the safe limit of two qts. for a cow and four to six qts. for a fattening animal. When mixed with corn meal or bran, it should be in the proportion of one-eighth to one-fourth. It will be found economical, when prices are low, to stimulate production in an intelligent manner, reducing the cost of the product and enlarging the demand by supplying it at reasonable rates, and to this end there is hardly a better way than by using cheap concentrated food in judicious proportions.

## The Kentucky Coffee-Tree.

BY PROF. C. S. SARGENT, DIRECTOR OF THE ARNOLD ARBORETUM OF HARVARD UNIVERSITY.

In studying the claims of some of our American Trees to more general consideration at the hands of those planters who plant for profit rather than for ornament, my attention has been directed to the Kentucky Coffee-Tree (*Gymnocladus Canadensis*). That a tree may be entitled to consideration as a subject for general planting, it is requisite: 1. That it should grow spontaneously over a large area of country, thus proving its strong constitution and power to thrive under various conditions of climate. 2. That it should grow rapidly and without requiring peculiar or nice treatment and cultivation. 3. That its products should be specially suited to some important employment. Let us see whether the *Gymnocladus* possesses any claims to these qualities. Of its power of adapting itself to very different climatic conditions, there can be no question. Few trees range over a wider area of the United States. It grows from Canada and Western New York to Wisconsin, and south to Kentucky and Tennessee. It extends across the Missouri into Nebraska; is common in Missouri and Arkansas, and not rare in Kansas and the Indian Territory. It is not found in New England, where, however, it is perfectly hardy, nor in the Atlantic or Gulf States. The Kentucky Coffee-Tree grows always in rich, strong soil, generally along river valleys, and reaches, probably, its largest size in that of the Lower Ohio. It is not a particularly fast growing tree, nor does it increase more slowly than other North American trees, while it produces a wood equally strong and heavy. The finest specimen I have ever seen (and it is one of the handsomest trees it has been my good fortune to behold anywhere), stands by an old historic mansion on the left bank of the Hudson, nearly opposite the City of Newburgh. This tree was procured from a nursery, and planted where it now stands in 1825. It is now eighty-eight feet high, with a trunk which girts ten feet, at three feet from the ground, and well below the point where the stem forks into the main divisions. Supposing that the date, 1825, has been correctly recorded, and that its stem was two inches in diameter at that time, it has increased thirty-eight inches in fifty-four years, or an average of nearly three-quarters of an inch a year for the whole period. But as this specimen, no doubt, received extra care for many years after it was planted, its growth has probably been exceptionally rapid and vigor-

ous, and should not, therefore, be taken as a fair sample of what the tree may be expected to do. A specimen before me, cut from a tree which grew on the banks of the Ohio, in Kentucky, is eleven inches in diameter, and has fifty-three annual layers of growth, or an average increase of less than one-fifth of an inch, a rate of growth which is probably much nearer the average ordinarily attained by this tree than that of the Hudson River specimen. The Kentucky Coffee-Tree is easily raised from seed, or from cuttings made from pieces of the root, which grow very readily, if planted like potatoes; and young plants will be found hardier and more capable of withstanding ill usage than seedlings of many other trees employed in forest planting.

But is the wood of this tree valuable enough to warrant its more general cultivation? The younger Michaux, a French botanist, who travelled extensively in this country, in the early part of the century, and afterwards published the history of North American Trees, which is still the standard authority on the subject, examined the wood of the Kentucky Coffee-Tree, and formed so high an opinion of its value that he recommended its general introduction into Europe as a timber tree. Subsequent writers on our trees have followed Michaux, often in his own words, in praising the tree, but without, perhaps, always very critically examining its real merits. So that now, while there is a general impression among those who interest themselves in such matters, that the tree is of great economic value, there is very little exact information attainable, I find, on many points in regard to the wood of this tree. I have had its specific gravity calculated, as the specific gravity of a wood appears, on the whole, the best test of its strength and value. That of this wood is .609; of Ailanthus, .614; and of White Oak, .662. So that, in spite of its slow growth, even the fast growing Ailanthus produces more valuable wood, while White Oak is considerably ahead of it. It is, however, in its turn, superior to Black Walnut, Cherry, and many other woods largely used in cabinet-making. But the specific gravity is no test as to the durability of a wood, for the lightest woods, like Catalpa, are often the most durable; and nothing but actual trial can determine how any wood will behave when exposed to alternating dry and wet. If proved to be really durable, this will be an admirable wood for railway ties, fence-posts, and out-door construction; and if any reader of the *American Agriculturist* has any personal knowledge of its having been used for such purposes, or for furniture, or otherwise, he will confer a favor on the writer of this article by communicating with him on the subject. The specimens of this wood which I have examined are close-grained, compact, very tough, and remarkably free from sap-wood. The heart-wood is of a bright, cheerful, rosy color, susceptible of a high polish, and when cut transversely, shows numerous satiny "silver rays." The great drawback to this wood for cabinet-making is its cross-grained nature, which makes it very hard to season properly; but once seasoned, it will prove, although difficult to work, a valuable addition to the list of hard woods now so much used.

There are, then, undoubtedly some reasons why this tree should not be generally planted. It does not grow very rapidly, and will require, even in the best soil, at least a century of growth to attain its full size; nor, so far as is now known, does the wood of *Gymnocladus* possess qualities which render it superior to that of many other faster-growing trees. Still, when the practice of planting artificial forests becomes a more general one in this country than it is to-day, the rule of *mixed plantations*, which nature has established, will be found the wisest to follow; and in mixed plantations the Kentucky Coffee-Tree will find its proper place with the Ashes, Walnuts, Hickories, Maples, and Oaks. As an ornamental tree, the *Gymnocladus* deserves much more attention than it has yet received. For street-planting it is particularly suited. It puts out its leaves very late, and so does not cast a dense shade early in the season, when too much shade is an objection. Its habit of growth, too, with its upright, not spreading, branches, adapts this tree to narrow streets or country roads, where trees with a spreading habit of growth could not find space in which to develop. Its freedom from the attacks of all insects, so far as I have been able to learn, is another advantage, and not a slight one, in favor of the Kentucky Coffee-Tree for street-planting.

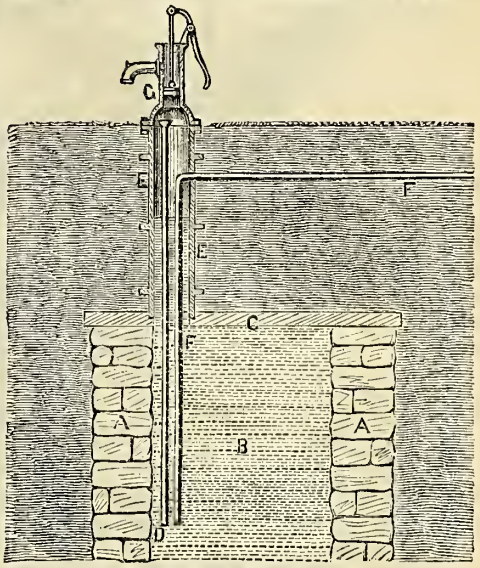
## The Grape Vine Raspberry.

It is often the case that we feel sure that a thing is a fraud long before we can prove it to be so. This has been the case with the "Grape Vine Raspberry," the very name of which is calculated to excite suspicion, and we had inquiries concerning it for some time before we could get at its history. One Holland, of Plymouth, Ind., sent out a special circular, headed: "A New and Rare Plant, Grape Vine Raspberry." He says: "A raspberry that resembles the grape vine in wood and leaves. It is purely thornless, and the wood is jointed like a grape vine * * * a very large, sweet, luscious berry; measuring 1 inch in diameter. * * * It is a new seedling raspberry, and makes a rare and very pretty ornamental bush on account of its large leaves, singular appearance, and the beauty of its flowers when in blossom. I control the entire stock"—which he offers at $1 the plant. It is not our custom to advertise nurserymen gratis, but we make Holland an exception, and we advise all who wish to purchase a real genuine "Grape Vine Raspberry," to go to the man who controls "the entire stock," though we do not think that the demand will be large after we have told the whole story. "The Evergreen," a nursery paper, published at Green Bay, Wis., stated that Holland purchased of Pinney & Co., of that place, a lot of "Nootka Sound Raspberry Plants, (*Rubus Nutkanus*), which grow native and wild there," and was selling them as a seedling, and the editor proposed to furnish the same plants that Holland was offering at $1 each, for $8 a hundred! Messrs. A. Hance & Son, Red Bank, N. J., who have a sharp eye for novelties, procured plants of the genuine "Grape Vine Raspberry" from Hammond, and plants of the "Nootka Sound Raspberry" from Pinney & Co., of Sturgeon Bay, Wis. In due time both these flowered and fruited at Red Bank, and they both turned out to be the same thing—not *Rubus Nutkanus* at all, and not to be distinguished from the old "Flowering Raspberry," *Rubus odoratus*. We would not imply that there was any intentional wrong on the part of Pinney & Co.,—they merely mistook one native plant for another very closely resembling it—a thing which may readily happen. This "Flowering Raspberry" is common from Canada to Georgia, and even grows—or did not long ago—within the limits of New York City. As an ornamental shrub we have often commended it, as it has pleasing foliage and large, purple flowers. As to its fruit, Holland is right in saying it is "large," and it is often "1 inch in diameter," but being shaped like a saucer it is all breadth and no depth. It may be "luscious" to Hammond—but tastes differ. If one had an acre of plants, he might get a quart of berries at a picking—then again he might not. We have seen many bushes, but never many berries. Messrs. Hance & Son think that the "Grape Vine" plants seem to be rather larger in the leaves and flower than in the Eastern form of "Flowering Raspberry"—but that the berries are not more numerous or better in quality. Those who wish to grow the "Flowering Raspberry" as an ornamental shrub, can get it at almost any nursery for 25c. If they wish to purchase the same thing under the name of "Grape Vine Raspberry" at $1 apiece, they will now know where to send.

**Salt as a Fertilizer.**—There is a mistaken idea prevalent that it is contrary to law to use salt as a fertilizer. This is a relic of the war of 1812, when this use of salt, then an imported article, was forbidden as an improvident waste, tending to make it scarce and dear. The tradition still survives, and is occasionally heard of from all parts of the country. There is no law to prevent any use we may wish to make of salt, and as a fertilizer it is not only largely used, but it is very beneficial to some crops. For mangels and field beets, excepting the sweet varieties, and for field crops of cabbages, 300 lbs. per acre may be generally used with benefit, scattered on the soil as the young plants make their first appearance, or are first set out. Salt is frequently useful when mixed with an equal weight of plaster and applied at the rate of 200 lbs. per acre to clover or grass early in May.

## A Covered Well for Pumps.

Mr. "W. J. W.," of Staten Island, sends a sketch of the manner in which he arranged his well. This was dug 13 feet deep and 5 feet in diameter; stoning up left the well 3 feet clear on the inside. Over the wall he placed a flag-stone with a circular hole at one side, and from this he carried a 4-inch tile pipe up to the surface of the ground. A pipe to



COVERED WELL AND PUMP.

connect with a pump at the house, and another to connect with a pump at the well, were passed through the tile pipe, and all above the flag-stone filled in with earth, as shown in the engraving, which gives a sectional view of the well. This has the advantage that it keeps out all surface water and other impurities, but it would make it rather troublesome when it became necessary to clean the well, from sand, etc.

## Jute and its Culture.

Probably no other fibre can be made to serve so many different purposes as that afforded by the Jute plant, and probably no other can be produced so cheaply. Then again, the demand for it seems almost unlimited; our imports over ten years ago exceeded $5,000,000 annually, but now they must be very much larger. It can be cultivated in all the States south of Virginia. The limit of its profitable culture is not yet ascertained, but perhaps it will be further north than here indicated. There is no apparent reason why we should not raise every pound of jute used in this country, and its culture has been commenced with greater promise of success than has attended the introduction of any other crop new to our Agriculture. This is due largely to the fact that there are factories already in operation for the manufacture of the imported raw material, and one great obstacle to the introduction of a new crop—want of a market—is removed. Then the Agricultural Society of South Carolina has taken an active part in the matter, and encouraged its members to undertake the culture by supplying seeds and giving instruction as to growing and treating the crop. Jute is a native of Asia; its botanical name is *Corchorus capsularis*, and it belongs to the *Tilia* family, which is represented with us by the Basswood, or Linden, a tree well known for its tough bark. The Jute plant is annual, with a stem 8 to 12 feet high, an inch or more through at the base, and branching only at the summit. The form of the leaves, of the small yellow flowers and seed capsules, is shown on the next page. The plant is cut when in flower, tied

in bundles, and steeped in water for 10 to 20 days, during which time all but the fibrous bark is so far decayed that it separates when beaten, leaving the fibre clean; it is then put up for export in bales of about 300 lbs. each. As with other fibre-yielding plants, the quality of Jute is greatly affected by the rapidity of growth, the nearness together of the plants, the time of cutting, etc., the finer kinds being very bright and glossy, and soft to the touch. The great consumption is for the making of bagging material, especially that known as "gunny;" it is used for coarse cloths, carpets, and for cordage, though not sufficiently durable, when exposed, for the latter purpose. The finer kinds are used to make coat-linings and other fabrics, and are mixed with cotton, woollen, and even silk, in certain styles, its employment having greatly increased within recent years. In some parts of India the natives are wholly clothed in cloth made from Jute. The thick ends of the stems, known as "Jute Butts," and refuse of the gunny factories, are used as a paper stock. The Agricultural Society of South Carolina is doing much to encourage the culture; the Secretary has published directions for its cultivation, and has ordered from India a new supply of seeds for distribution to the members. Last year seeds were distributed to 85 farmers, mostly residing in the seaboard counties, and the results reported by them are very encouraging. The larger share of these persons cultivated this first crop for seed rather than fibre, and it is expected that a large breadth will be sown this year. Jute succeeds best on rather clayey land, neither very wet nor very dry; it flourishes perfectly well in the immediate vicinity of the sea, and even where the water is brackish from its influence. The land being well prepared by plowing and harrowing, the seed is sown broadcast from April to June, using 15 to 20 lbs. to the acre, and brushed or harrowed in. Nothing is done to the crop until it is ready to cut, which is in 100 to 120 days from sowing. It is cut for the fibre when in flower, but if seeds are desired, the plants are left later, as the seeds begin to ripen soon after the first flowers fall, and continue to do so until frost. Last year the first roll of bagging from Jute of American growth was exhibited at the S. Carolina State Fair. Recently there has been some talk about

Fig. 1.—THE JUTE PLANT (*Corchorus capsularis.*)

"AMERICAN JUTE,"

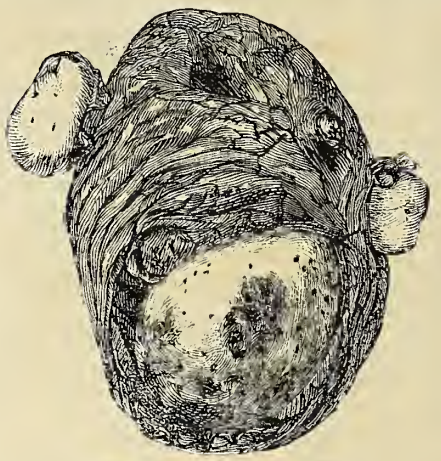
a subject that comes up in the papers every few years, and it appears to be discussed to no other purpose than to allow a few speculators to sell at a high price the seeds of a common wild plant under a name that does not properly belong to it. This so-called "American Jute" is the Swamp Rose-Mallow—*Hibiscus Moscheutos.* It has a large perennial root, with stems 3 to 6 or more feet high, broad pale green leaves, and numerous large, pink, hollyhock-like flowers, which in late summer brighten the brackish marshes all along the coast. Like all other plants of the Mallow family, the stem of this has a strong fibrous inner bark, which, could we not do better, might be made useful. We feel very sure that this "American Jute," admitting the excellence of its fibre, can never become a profitable crop, for two principal reasons: its stems can not be produced in sufficient abundance on a given area for a large yield, and its perennial character; the ground once filled with these roots, it would cost about what the land is worth to clear it; if kept long on the same land, heavy manuring will be required, and crowding the stems, often necessary with fibre-plants, is not practicable. We are not averse to trials with this or the dozen other native plants that produce fibres, but we insist that there shall be no mystery or false representation, but the plant shall be discussed and offered as just what it is, and under the name by which it has long been known through a wide district. The "American Jute" fever was at its greatest hight in 1863, when, to show what the plant was, the engraving here given (figure 2) was presented. While it is much under size, it gives a good idea of the flower.

## The Old and New in Potatoes.

There appears to be several objects that, no matter how often we may name and describe them, continue to come with the request for the information we have given again and again. The "Oyster-shell Bark-louse" is one of these perennial queries; Katy-did's eggs, another; and the blue-bird does not any more surely mark the advent of spring than does the arrival by mail and otherwise of the old potato with the new one attached—or often found within what remains of the old. The engraving was made from a specimen which showed

Fig. 2.—"AMERICAN JUTE" (*Hibiscus Moscheutos.*)

new tubers both on the outside and within. The phenomenon is so striking that we do not wonder that it excites a desire to know something about it, though, as intimated, it is very far from rare. The potato—the tuber—is a short underground stem, thickened out of the shape of ordinary stems by a large deposit of starch. If the potato be placed in a warm place, vegetation is excited, and its dormant buds, or "eyes," will soon push and elongate into stems, provided it is free to do so; these stems are often in the aggregate several feet long. If we place the tuber in a warm place, and at the same time quite in the dark, where the stems have no room to push, as at the bottom of a barrel—where these strange potatoes are usually found—vegetation is excited as before, but as long stems can not grow, short ones are formed—that is small tubers. The growing shoot, being prevented from lengthening, and forming the ordinary kind of stem, makes



NEW POTATOES FROM OLD.

another kind—the underground form of stem—the tuber. These young tubers—or new potatoes—have grown at the expense of the old, as that will be found shrunken and wilted. This tendency was formerly employed in Europe to produce new potatoes in winter. Potatoes of the previous year were found to be best; these were kept all through the summer by spreading in a cool place, and removing such sprouts as appeared. At the approach of winter these were placed in boxes of earth, stacked one upon another—darkness being essential—in a warm place. In due time that which we have described took place; new potatoes appeared, small and of poor quality, but still *new.*

**Root Crops.**—The season for sowing roots, lasts from May to September, and during the four months intervening a variety of crops may be sown. The first in the season is mangels, of which there are several varieties. The smaller kinds of these, although they do not yield so heavy a crop as the larger kinds, are more desirable on account of their higher feeding value. Several yellow-fleshed varieties of mangels, have been introduced of late, which are very promising for our climate. Webb's Yellow Kinver Globe, and the Yellow-fleshed Tankard, are the most popular varieties of these. The flesh of these is less watery and more solid than that of the Mammoth Red. Sugar beets furnish the second crop, and may be sown as late as June, of these, Lane's Improved, and Vilmorin's Improved Sugar, are the leading varieties. Red or Blood beets may also be sown in June, and furnish an excellent food for milch cows, as they have the effect of contributing some of their high color to the cream and butter. Carrots and parsnips will be rarely grown, on account of the expense of harvesting them, while beets, sugar beets, mangels, and other shallow rooted bulbs, can be grown with less labor and greater profit. After beets, ruta-bagas may be sown in June and early in July, and in August white turnips may follow. With so large a choice of roots, there is no reason why press of work should come in the way of growing this valuable crop. When roots have once been grown successfully, there is no need for advice to raise them, but only to mention the newer or improved varieties. Where as yet they have not been grown, a trial of an acre or less, with good care, will surely be well repaid, and will serve to establish the practice for the future.

## Hardy Ferneries and Rock-Work.

The numerous inquiries as to the construction of hardy ferneries are especially welcome, as they indicate a diversity of tastes in gardening matters, and show that the number of those is increasing who can see beauty in plants as well as flowers. For the successful cultivation of many ferns, if not the majority, an artificial rock-work is necessary, and a rock-work or rock garden allows of the cultivation of, besides ferns, a large number of plants classed as alpine. First, as to the rock-work; much of it is literally rock-*work*, and very bad

Fig. 1.—WRONG.

Fig. 2.—RIGHT.

work. Nothing can be more out of place than a pile of stones upon a lawn—like an eruption upon a fair face. A rock-work should never be made for the sake of the rocks. Monstrous things are built up with stones and cement, with pockets to hold soil; plants, without reference to their native localities, are set upon it, and the whole left to frizzle in our hot suns. A rock-work is needed merely because it enables us to grow certain plants better than in any other manner, just as we give some plants the wettest available spot, so we give others the rock-garden, that they may feel the more at home. The rock-garden, being as far as possible from the formal and artificial, should not

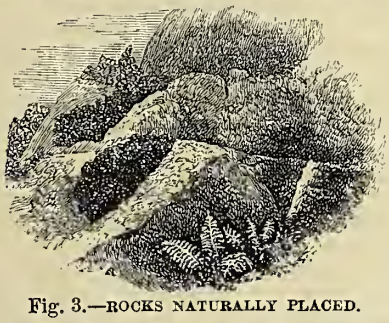


Fig. 3.—ROCKS NATURALLY PLACED.

be in the flower-beds or upon the lawn, but in some nook or corner where such a wild spot might naturally occur. Many suppose that rock-plants, including ferns, must have shade. This is not essential, as such plants vary greatly in this respect, and many of the finest species, in their native alpine homes, are exposed to the full sun. The peculiarity of those plants which flourish best on the rock-work is, that they have long fine roots,

Fig. 4.—ROCKS ARTIFICIALLY PLACED.

which find their way down among the crevices of the rocks, where they are not affected by drouth—in fact, plants which really need a mulching of stones. In constructing a rock-garden, one must avail himself of the materials at hand; if weather-worn, lichen-stained and moss-covered stones are to be obtained, they will be all the more pleasing. No rule can be given as to form and arrangement, but if one is in a rocky district, follow as near as possible the natural arrangement of the rocks of the neighborhood. Rocks of various sizes, from as large as one's fist, up to the size of a barrel, may be made useful. A flat, unbroken rock is of little use to the plants in question. It is the crevices between the rocks that gives the rock-work its value. The boy's description of making a cannon —"they take a long hole and pour melted iron around it"—applies in a measure to rock-work; we want many long holes with rocks around them, and we also want those holes filled with earth. The essential point to be observed is, to have all crevices or spaces between the rocks in full communication with the earth. Whether a large or small body of earth, a mere crack or a "pocket" is to hold the roots of the plants; the roots should find earth all the way down, until they reach the surface of the planet itself. In this case the earth is always kept from drying out by the ascent of moisture from below. Another point is, that the crevices be so arranged as to receive the rain that falls. In his excellent work on "Alpine Plants," Mr. Wm. Robinson, editor of "The Garden," London, Eng., gives some instructive illustrations of the manner in which rock-gardens should be constructed, and he emphasizes his teachings by showing how the work should not be done, as well as the proper method. We here reproduce some of his engravings. Where, as may sometimes be the case, rocks are so placed as to leave the fissures in a nearly horizontal manner; if these are as in figure 1, the plants will fare badly, as they are put in places of safety where no rains can reach them. The right method in such cases is shown in figure 2. In figures 3 and 4, by the same author, we have the right and the wrong methods of treating rock-work; in the first (fig. 3) the rocks appear as if nature had placed them there, while in figure 4 the artificial character of the structure is manifest. A rock-garden may be a simple affair, or if one has the means it may be an extensive structure, with ravines, defiles, chasms, cascades, caverns, etc, and the work referred to gives some illustrations of what may be done if one has the means to expend in this direction. Of course we have in view only an inexpensive structure, if it can be so termed. The appearance of an unpretending rock-garden, when the rocks are made to appear as if a natural out-crop, is given in figure 5, from the same author, who in figure 6 shows how an old stone wall may be utilized and converted from an encumbrance into a pleasing feature. If one is so situated that a rock-work of even the simplest form is not practicable, the cultivation of alpine and rock plants need not be abandoned. As already stated, one of the principal reasons why certain plants grow better on a rock-work than elsewhere —some even refusing altogether to flourish in the ordinary border, is the protection afforded to the roots, and this probably consists as much in preserving a uniformity of temperature as a sufficient moisture. These conditions can in many cases be met by setting the plant in the border, and then placing around it a broad, low mound of stones, extending several inches from the plant. The soil is of quite as much importance as the rocks themselves. In no case should it be of a kind to pack hard or to bake; woods-earth or peat, with an abundance of coarse, sharp sand, will approach in character to the soil of their native homes. Mr. John Robinson, Salem, Mass., in his

Fig. 5.—A SMALL ROCK GARDEN.

admirable work on fern culture, shows how easy it is to those, who care for the plants, rather than for a pretentious place to grow them, to have a fernery, even within the limits of a city yard. We give a portion of his illustration of his fernery (figure 7). A rough wall was built of loosely piled rocks, about two feet in front of the boundary fence, also of stone; the space between was filled with suitable soil, which found its way into crevices among the rocks. The large ferns were planted at the rear, the smaller in front and in and among the "pockets" of the rough wall. When the boundary fence is of wood, a rear wall would have to be built also. The

Fig. 6.—AN OLD WALL USED AS A FERNERY.

rock-garden being provided, it is to be stocked with plants; it may be devoted to ferns only, or to alpine flowering plants. In either case one will find in the vicinity a large number of plants suited to such situations, and the rambles in search of them, the finding, the bringing home and planting will bring a foretaste of the pleasure to be derived in caring for them in after years. If impatient for an immediate effect, and unwilling to await the slow process of gradually transferring here the results of one's own collections, there are establishments where "Alpine Plants," including our choicer native species, are to be had at moderate prices. Such plants may even be cultivated in pots, by making each pot a miniature rock-garden.

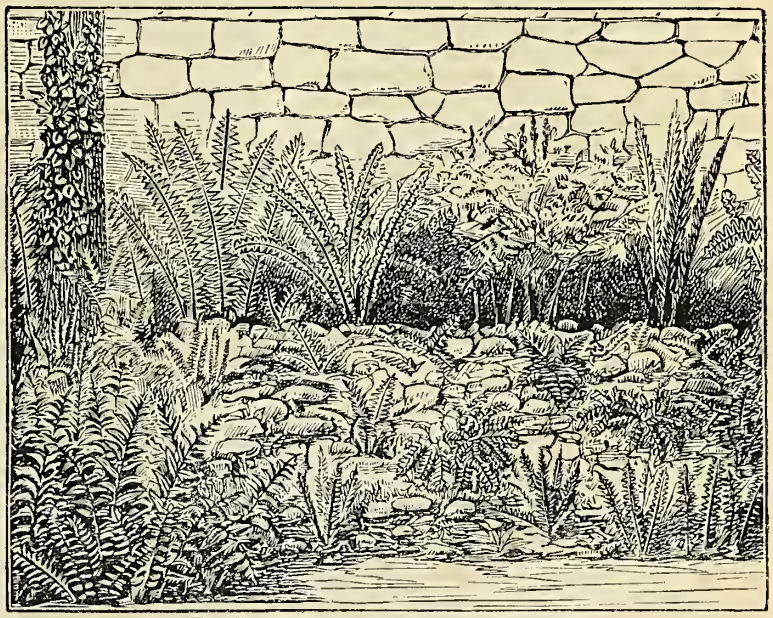


Fig. 7.—HARDY FERNERY IN A CITY YARD.

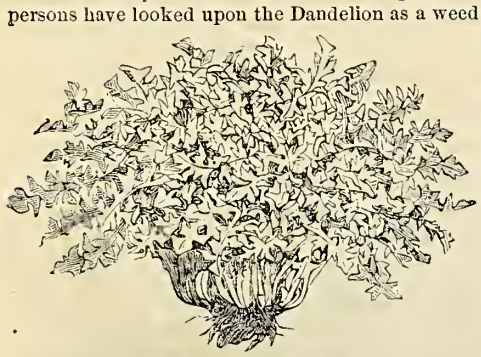
## Another Tree Label.

In former volumes we have given a great variety of devices for labelling trees; indeed, only last month (page 143) we called attention to one of the simplest and, so far as permanence is concerned, one of the best. The chief, if not the sole, fault of the zinc label described last month is, that it is not conspicuous; it is not readily seen upon the tree, and, when found, the writing, though thoroughly indelible, is faint, and requires close looking to read it. Orchards, as a general thing, need no labels—the position of the tree should always lead to its name in a record; but where one has a small collection, or grafts several kinds of fruit for trial upon one tree, it is very desirable to have a conspicuous label. Paper labels, printed in clear type, and enclosed in a metallic frame with a sheet of mica in front, are to be purchased, but they are expensive, and limited to the common varieties. We have seen in some foreign journal or catalogue a label printed upon paper, placed in a glass tube, the opening to which was then hermetically sealed (by melting the glass), and provided with a wire to hang it by. A correspondent, "*Pro Bono Publico*," gives a modification of this which is simple, practical, and not expensive; the engraving shows it at about half size. The vials, known to the druggists as "tube vials," cost by the gross about $1.60; the label may be written or printed; sound corks should be used, and large enough to require some pressure to force them into place, and the sealing should be done thoroughly. There is no reason why a label thus treated should not last indefinitely, if not broken. One precaution should be observed: if a label of this kind is prepared and sealed up on a damp day, the chances are that in time a minute fungus or sort of mould may appear on the paper, and disfigure it; this may be avoided by having all parts perfectly dry before sealing. The vial may be as large as one chooses, but the risk of breaking is greatly increased with the size.

LABEL.

## Now Sow Your Dandelions.

No doubt that many will wonder what brand new wrinkle is implied in the above heading. Most persons have looked upon the Dandelion as a weed


THE NEW DANDELION.

to be got rid of, and rather better than most weeds, as when cut up by the root in spring it makes an acceptable accompaniment to the salt meat. The readers of the *American Agriculturist* are aware that we have on more than one occasion advised the cultivation of the dandelion—not indeed by sowing the common weed, but an improved kind. This was referred to last month, on page 144, in an article on "Greens," and now that the time for sowing is at hand, we bring it again to mind. When one introduces a new vegetable into cultivation, he is a public benefactor, so when one induces another to cultivate a vegetable new to him, though old to cultivation, he is a private benefactor; by enlarging his knowledge of the good things of the world, and inducing him to try even but one of them, that man's comfort and enjoyment of life is increased. The fact that the dandelion is a weed, is no argument against its cultivation; parsnip and carrot are vastly worse weeds, yet we go on cultivating them. If one is fond of dandelion at all, he should cultivate it, for two reasons: he can cut a bushel in less time than he can hunt up a quart in the fields, and is as much superior to the wild as a Savoy is to a common Drum-head cabbage. If we mistake not, we are indebted for the improvement—or, as the French have it, "amelioration"—of the Dandelion, to one of the Vilmorins of the world-renowned horticultural house of Vilmorin, Andrieux & Co., Paris. This is by no means the only improvement with which the name is connected, but this deserves the thanks of the world. In the course of improving the Dandelion, three useful varieties were established, the Large-leaved, the Thick-leaved, and the Curled-leaved, which have been in cultivation for several years, and this year the French journals announce still another, the "Very Double" (*a cœur plein*), Vilmorin's engraving of which is here reproduced. The French use the Dandelion almost solely as a salad; it is blanched by covering the leaves, usually with earth: in a few days they lose their green color and nearly all of their bitterness, and come out white, crisp, and tender. This new variety appears as if especially adapted to this treatment, and it remains for us to try if it is superior to the older kinds as a pot-herb. Our experience has been with the Long-leaved, the seeds of which are kept in our leading seed stores. Nothing is simpler than the culture. Sow this month in rows two feet apart; thin, when large enough, to a foot apart; or sow in a seed bed, and when large enough, in June or July, transplant to rows at the distances above named; this method is but a trifle more troublesome and is greatly saving of seed. Keep clean, and encourage the growth all summer, to get as strong plants as possible; when used as salad, it is blanched in September or October; when grown for greens only, it is better when the ground freezes to lay some straw or litter along the rows. The next spring the litter is removed from directly over the plants, but allowed to remain between them, as it will keep the foliage clean.

## A Use for Vines.

It is sometimes desirable to mark a boundary or division line when neither a fence nor a hedge is desirable—as, for example, between the ornamental portion of the grounds and those reserved for the vegetable garden or for the clothes-yard. In such cases a most pleasing screen may be formed by the aid of quick-growing vines, the best of which for this purpose is our Virginia Creeper. Strong posts of suitable hight should be set 8 or 10 feet apart, and several vines planted at the base of each. Chains of sufficient length to form graceful festoons are to be carried from post to post, and as the vines grow they are to be trained upon them. The effect of such a screen is only partially conveyed by the engraving, as it shows but a single member. This method is used with fine effect in Europe for training Ivy, and is to be commended to those of our readers who live where that finest of evergreen vines is hardy. We have seen, somewhere in the suburbs of Boston, the Virginia Creeper trained in a similar manner from one tree to another; the effect would no doubt please the majority,

PORTION OF A SCREEN OF VINES.

but for ourselves, we do not fancy anything done to a tree that suggests mutilation, and as the fastening of chains does this, we prefer to leave it undone.

## Poultry Proof Fences.

That chickens are most useful in a garden, but that hens and horticulture are not compatible, every one with much experience will maintain. The better way is to fence *in* the poultry, but it sometimes happens that they must be fenced *out*. If one is to build a garden-fence, the possibilities of poultry will be borne in mind, and provided against; but most

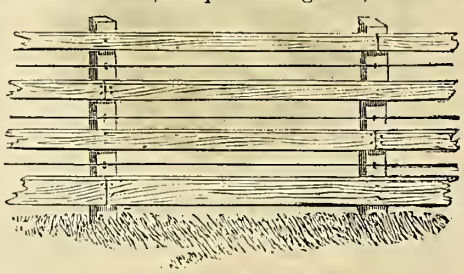


Fig. 1.—FENCE WITH WIRE.

frequently the fence is already built, and in that case is usually excellent for keeping out almost every thing except hens, the very thing for which a fence is most needed. The accompanying engravings are from two sketches by L. D. Snook, Yates Co., N. Y., and give methods of so changing the common board fence as to make it serve for fencing in or fencing out fowls. In fig. 1 the space between each two boards is practically closed by stretching a galvanized wire midway between—No. 10 being sufficiently heavy; should the lower board be too far from the ground, the space may be closed by another board, or diminished by the use of a wire as may be best. In fig. 2, the same end is accomplished by the use of slats nailed to the fence-

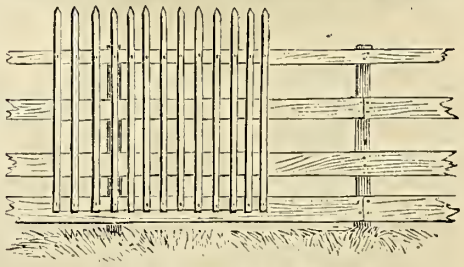


Fig. 2.—FENCE WITH SLATS.

boards. Common laths may be used as a makeshift, but it is better to use regular fence-slats. If

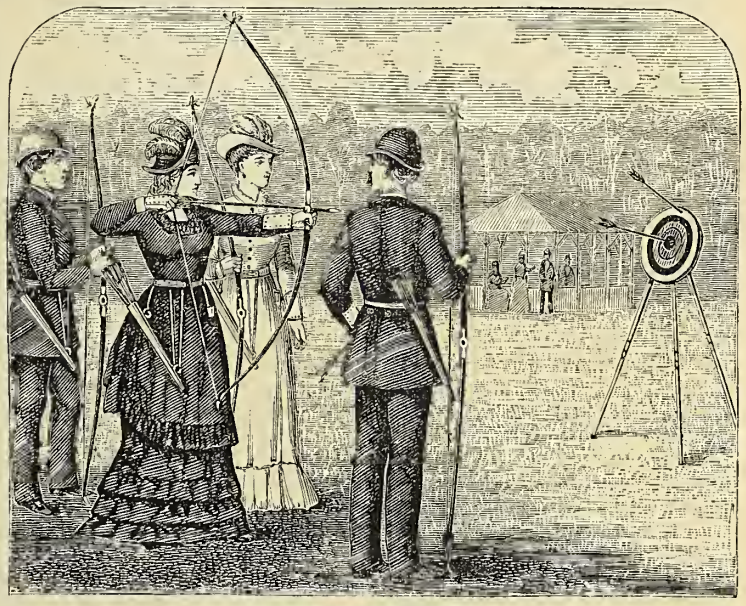
the fence is too low, its hight may be greatly increased by allowing the slats to project above. If slats have to be sawed for the purpose, they should be of stuff fully half an inch thick, and cut two inches wide—or wider if desired. The ordinary slats are two and a half or three inches wide, and if placed upon the board fence at their own width apart, form a very serviceable barrier.

## Thermometers.

If a thermometer is only to show us the temperature of the air, whether out-doors or in, it makes but little difference how it is mounted, provided it is properly secured against accidental breaking. But we often wish to have water or other liquid at a given temperature; it is impossible, especially in warm weather, to churn properly and not know the exact condition of the cream, and other cases are occurring in which the thermometer must take a part. For these varied uses the old style of thermometer will not answer, on account of the difficulty of properly cleaning it, if for no other reason. A quarter of a century ago we used to know in the laboratory what was called a "chemical thermometer," a costly instrument, to be used with special care not to break it. The thermometer, scale and all, was completely enclosed in a glass tube; this could be placed in boiling acids and other destructive liquids, and remain uninjured; a rinsing in water perfectly cleansed it and made it ready for another use. Within a few years the costly "Chemical Thermometer," or one of precisely the same construction, has been offered for common use at an astonishingly low price, and while it can serve every purpose of the common thermometer, it may be used in many cases in which that can not be, and there is no reason why it should not come into general use, as it will serve every purpose to which a thermometer can be put. The engraving shows one of these instruments. The bulb and tube filled with mercury are as in any other thermometer; the graduated scale is upon paper, and attached to the tube of the thermometer; the whole is then enclosed in an exterior glass tube, all save the bulb, which is in part or in whole exposed. The outer glass tube or case is closed above, and has a ring to admit a cord or wire by which to hang it up. Those offered for sale, like other styles, have a very narrow range, or very long one, according to the uses for which they are intended. Having watched the makers of common thermometers, and knowing how many times more difficult it is to make one like this, we are utterly at loss to know how such an instrument can be made to retail for a dollar. Indeed, the Dairy Supply Co. sell those for use in the dairy, equally well made, but with shorter range, for 75c. Of course, common thermometers, mounted in wood, may be sold for 25c.—but these glass encased ones require great skill to make them. When the retailer and the importer have had their profit, when the duty is paid, and the merchant upon the other side gets his profit, we wonder how much of the 75c. gets to the poor workman, who wears his life away over the blow-pipe.

## The Cultivation of the Quince.

To judge from our correspondence, there is a newly awakened interest in Quince culture. Some ask for books upon the subject, and others inquire as to the probable profits of a Quince orchard. There is not enough to be said on the subject to require a special volume; the standard works on fruit culture—Barry's, Thomas', Downing's, etc.—each give the needed instructions. We have no data from which to give the probable returns from an acre in Quinces. The attempts at anything like proper cultivation have been comparatively few; but, judging from the prolific character of a few trees of our own, and the price which really good fruit brings in the market, we have no doubt that, take a series of years, the Quince will be found quite as profitable as any other orchard fruit. Quinces bear so well, in spite of bad treatment, that it is a popular notion that neglect suits it best. This is a great mistake; there is no fruit that responds more promptly to good culture, and we would advise no one to undertake the cultivation of quinces unless they intend to *cultivate* them. The land should not be a low, wet, out-of-the-way piece, good for nothing else, but such soil as will yield good returns of any farm crop, and it should be put into good condition by manuring and plowing. There are two methods of training the Quince—or, rather, one method, the other being the absence of training. It is advised by some to allow the tree to grow in a bush form, with several stems from one root. The alleged reason for this is, that if the borers destroy one stem or trunk, there will be others left. The proper method is, to grow the Quince in a tree form, with a clean trunk and regular head; then the borers can be kept out, or killed if they ever get in, a matter well nigh impossible when each tree presents a thicket of stems. It is true that it is some trouble to form a head, but it has to be done but once, and the advantages warrant it. The soil being well prepared, set the trees at 12 feet apart. The first step in forming a head is to get a stout stem. If the young trees are weak, it will be better to cut them back severely and secure a new growth. The object should be to get a strong stem, at least an inch in diameter, upon which to form a head. If the stem is weak, give it a stake. Look out for borers, the presence of which is readily detected, as the bark is so smooth. Allow no suckers to grow. As to varieties: the best known and most generally cultivated is the Orange, also called the Apple Quince. The Pear-shaped Quince is preferred in some markets, but it is not so good a bearer. Rea's Seedling has been very satisfactory with us; it is a fine large fruit, and the tree bears well. A quite new variety, the Champion, which originated in Connnecticut, promises to be valuable and worthy of consideration.



AN ARCHERY PARTY.

# THE HOUSEHOLD.

☞ *For other Household Items see "Basket" pages.*

## What Exercise do Your Boys and Girls Take.

There are Gadgrinds of both sexes who may say that "my boys get enough exercise in doing the chores all the year, and as soon as spring opens they can get it behind the plow and harrow, or, later, in the hay and harvest fields; they are tired enough with the exercise of their work." As to the girls, it may be said: "The daily routine of the house, the sweeping and dusting, the table setting, and the dish-washing, give a plenty of exercise; but if they need any more they can help on washing days, and find a use for all their strength."—We would not say that the ideas implied in these answers are the rule, but that it is far too generally the case that mere work is looked upon as exercise, and that it will at all answer for or accomplish the purpose of exercise as *recreation*. For exercise to be beneficial it must not only be of a kind unlike the usual daily occupation, but it must have the co-operation of the mind. Mere muscular movement, that is not work, but made solely for exercise, without engaging the mind also, is of very little use. Many years ago the writer lived in the city, and in that portion of it where there were numerous (and very high-priced) schools for young ladies. In these schools a part of the regular programme was the morning and afternoon walk. These girls went out in pairs, the youngest in front and marshalled by two or more teachers. One teacher at the "head of the column" regulated the pace, the other at the rear kept an eye on all in front of her. To see these poor girls, each pair at a stated distance from the pair in front, and fated to look at their shoulders—for looking to the right or left would be seen by the "rear guard" and reported at headquarters; to watch them as they moved along at a snail's pace—the pace governed by that of the smallest child—up one street and down the other, and back home—this done morning and evening, day in and day out—seemed to us a most melancholy burlesque upon exercise, and was probably as near the real thing as the mental cramming which the poor girls received did to education. If those girls could have had only a city back-yard where they could have taken exercise *as they pleased*—without the horrid formality of these walks—what a difference. We hold that exercise is of little value that works the body and neglects the mind. The side-walk promenades referred to presented only so many squares to be walked around. Suppose that the same distance had been accomplished in the country, with at the end a locality where Bluets, wild Violets and Spring Beauty could be gathered! It being admitted that the mind shall be concerned as well as the body, if we would have useful exercise, the question presents itself how can this be best accomplished. The utility of rambles, with flowers as the object, has been alluded to, and other branches of natural history offer the same advantages. But it is desirable to have exercise and recreation nearer home; something that requires little or no preparation, and at the same time something in which the boys and girls (both old and young), and those of the neighbors, too, if need be, may join. It was because it offered all these that Croquet acquired its popularity so suddenly, and retained it so long. It not only is a social exercise, but, in requiring some skill, occupied the mind in the endeavor to accomplish something—to get the better of the opposite players. But, like all good things, Croquet has had its day, and there is a desire for something new. In England, the leading out-door games, besides Croquet, are Lawn Tennis and Archery. Lawn Tennis, probably for the reason that it requires considerable preparation and some one who knows the laws of the game to instruct others, seems to have taken very little foothold in this country. Archery, on the other hand, is yearly increasing in popularity. As affording exercise for both body and mind—as being a social game, admitting of any number of participants—as a home game, one that is possible on the lawn, or elsewhere close at hand—as a game

for which the outfit is not costly—it, in fact, meets every possible requirement in a family game that shall furnish recreation, that shall be as far removed from work as possible, and to be participated in *because*, and for that reason only, it affords healthful exercise for both body and mind. The kind of exercise afforded by the use of the bow is unlike that in most other out-door amusements; it brings into play the muscles of both arms, and aids in developing the chest, and leads to an erect and graceful carriage of the body. An archery party, as shown in the engraving, is attractive to the spectators, as the outfit and the positions taken by the players are exceedingly picturesque and pleasing. We have frequently referred to the mental exercise, holding that to be quite as important as the other. Archery affords this in an unusual degree, for, besides the excitement of rivalry, the desire to excel another, the conditions of success must be considered, and this will lead those who desire to excel to consider under what conditions the best shots are made. Besides this, while Archery is now merely a game, it was formerly an art. The history of the bow, not only as a weapon of war, but as the only one used in the hunt, opens up an interesting period of history, and those so inclined will find the history of Archery most attractive. In view of the revival of Archery—in fact, it promises to be the coming home exercise or game—a number of persons have been at work devising new and attractive forms of the bow, arrow, and other accessories. Several of these new designs in Archery have been presented to the Orange Judd Company, no doubt because they are widely known as agents for Crandall's Blocks, the most popular toys of the age. One of these new styles of Bows and accessories—that invented by Wright & Thorne—seemed to possess so many novel and useful features that they have undertaken the sale of them. The particulars in which the bow—of course, the most important part of the outfit—differs from other bows, and the accessories were shown last month, on next to the last page of the cover, and are given more in full in a Catalogue which is sent upon application. We may suggest that, besides the home exercise of Archery—and we believe in home amusements before all others—the formation of Archery Clubs, to meet at stated times, to adopt some simple uniform, and to exercise for some inexpensive prize. Such clubs greatly conduce to good feeling, and as they create a community feeling, make better neighbors. Let our young people try Archery.

## A Compact Quilting Frame.

It looks as if there might be a quilting mania, from the receipt in quick succession of three designs for quilting frames. These designs are essentially the same—varying in unimportant details only

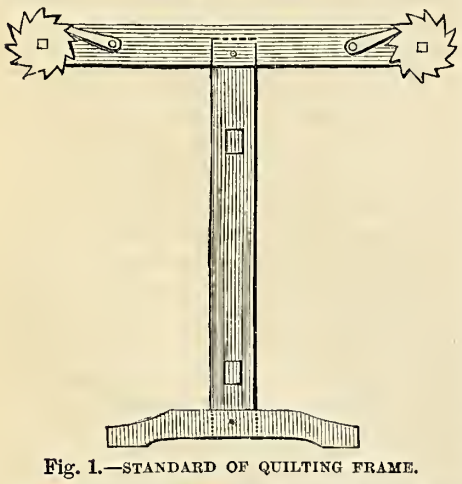


Fig. 1.—STANDARD OF QUILTING FRAME.

—and appear to be an improvement upon any of the numerous frames we have published. Having several to choose from, we accept the one that has come the greatest distance—that by George Linfield, Washington Co., Oregon. The frame is supported by two standards or end pieces, one of which is shown in fig. 1. The upper horizontal portion is 30 in. long, and of 2 by 3-inch stuff; between this and the foot is an upright 30 in. high, with two mortises for the slats. There are two slats, 7 ft. long and 1 by 3 in.; each end is cut to form a tenon, which passes far enough through the upright in fig. 1 to allow of a ⅜-inch pin; when the slats are in place, and the pins driven in, the whole is very firm, and may be moved about if desired;

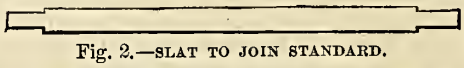


Fig. 2.—SLAT TO JOIN STANDARD.

the lower slat answers as a foot-rest for those working at the quilt. The two rollers, fig. 3, may be round or 8-sided, 7 ft. long and 2 in. through; one end has a round bearing 1¼ in. diameter; the other end has a similar bearing, and beyond that is an inch square, to hold the ratchet-wheel shown in fig. 1. The ratchet-wheels may be of hard wood, 4 in. diameter and an inch thick. A strip of cloth is

Fig. 3.—ROLLER TO HOLD QUILT.

tacked to each roller. E. S. Hallett, of Indiana, makes the ratchet-wheel of sheet-iron, and 5 in. in diameter; uses but one slat, which with the roller is 9 ft. long. The advantage of this frame over most others is the small space it occupies, whether in use or not. If the work is interrupted, the quilt can be rolled up on the rollers and set aside.

## Home Topics.

BY FAITH ROCHESTER.

### More Baby Talk.

After all, there is nothing connected with the Household so important as the proper nurture of our children. I need not apologize for coming back to the subject so often. How can I help it now, when my arms and my time and my heart and mind are chiefly occupied with the care of one of the sweetest and cunningest babies that ever came into this world? All mothers will understand this language, which no doubt seems extravagant to others. A bachelor friend of the family called here the other day, and was surprised to find what he called "a little stranger" among us. I pitied his ignorance of babyhood. But it was not a willing ignorance, for he asked some curious questions on the subject—wanted to know if the fourth or fifth or sixth baby in a family seemed just as wonderful and delightful to its parents as the first child. I was glad to bear testimony to the goodness of God, for how dreadful it would be if this story of human life and love did ever grow old and wearisome. It is a part of the Lord's great mercy that to loving parents, each infant added to the flock, is a fresh wonder and source of tender admiration. Sometimes our hands are so full and our strength is so little, that we do not see how we can possibly do or bear any more as mothers; and we could not, if the baby itself did not awaken such a fresh fountain of love for its own sweet helplessness as gives us new energy and courage—new physical strength too, in many cases. Let me say plainly that I believe parentage, under healthy and happy conditions, to be decidedly wholesome for women, physically, mentally, and morally. It is good for men, too, and a pure and wise fatherhood is quite as necessary for the welfare of the human race as a good and loving motherhood. Fathers ought to see a good deal of their little children; ought to share to some extent in the real daily care which infancy entails upon some one. Babies are costly treasures, and some one must very frequently attend to their various needs, and one who does this with loving attention, is sure to reap a blessing. The experience is so new and wonderful to the young parents of a first child, that they fancy the delight comes largely from its novelty. But there are added elements of pleasure as other children come along. The wonder of the little brothers and sisters is a pleasant thing to see. It seems to me that children who are led to believe that the doctor or nurse brings the baby to its mother, cannot possibly love and reverence it as those do who believe that it has come from Heaven as one of God's most precious gifts—came to mamma's bed in the night, as the youngest one thinks—grew naturally in God's appointed way as the elder ones have heard, as the flowers and fruits each grow in their own heaven-appointed way. It pains me to think of the falsehoods other mothers have told their confiding children about our precious baby, and I can hardly wonder at the indignation or contempt which better-informed children feel for these false stories. I think it important, however, as we give truthful answers to our children's inquiries, that we caution them not to talk on such subjects with any but their parents. A very little correct information satisfies most children, and the subject is easily changed.

### Baby's Nights.

One of my late letters of congratulation, lacks a little pity in some of its lines. It comes from a mother of only one child. She says, "I have no doubt the little one has found a warm welcome in your heart, but I think of the tired and already overtaxed mother, and wonder if strength sufficient will be added to carry you safely through the next two or three years of wakeful nights and baby-tending days. Or do your babies go to bed and sleep all night like grown folks. Mine didn't, and we are making up now for lost sleep."

I have not forgotten my experience with my first baby when he was the only child. We either kept a lamp burning all night or lighted one whenever anything was the matter with the little one. This was all unnecessary and has never been repeated in this family. The present baby has slept in a dark room every night since he came here, and since the first week no lamp has been lighted on his account. A maple "chunk" has burned slowly in the stove all night until this week (early in March), but a window has been kept open nearly every night. He is usually sound asleep soon after 7 o'clock, often earlier, and does not wake again until after midnight. He sometimes goes off into this sound sleep while nursing, and sometimes is rocked to sleep. The little grunts and squeaks he makes, stretching himself as he gradually wakes up with hunger in the night, awake me, so he does not arouse any one by crying. Here, it has come to be considered, by father and mother both, as quite undesirable for both parents to occupy the same bed with baby. No bed is wide enough for this, and a crib for baby alone is not the best place for him in winter. So it is never necessary to have him sleep on my arm except when feeding him, and quite unnecessary to keep a warm room, as he does not have to be moved from under the warm bed-clothes. Usually no change of garments is required as he is dressed for the night with sufficient protection to carry him through. If he gets uneasy about it, however, his "under-clothes" can be changed without uncovering mother or child, if you have the napkins carefully folded ready for use and laid near, so that you know just how to open and use them in the dark. These quiet nights are worth trying for, and to secure them, the mother and child should not be crowded, the room should be well ventilated and reasonably quiet, and the baby should never be taken up in the night or exposed to the lamp-light unless it is absolutely necessary. When an infant has to be fed with a spoon or drink from a cup, the case becomes more difficult, but let everything be done with as little fuss as possible. If the mother can nurse the child at all, if her milk is healthy but only insufficient in quantity, the child need not be weaned entirely, but have two or three additional meals, and none need come in the night.

### Bread that is Sweet.

"I don't know what you mean by *sweet* bread," said the hired girl; and she didn't. Her bread was well kneaded and very light, but never really sweet and sometimes sour. That bread shall taste sweet, is one of my household hobbies, perhaps. I hear bread praised as very nice, which seems to me quite poor, because it lacks this essential quality. Sugar will not give the desired sweetness, and surely soda cannot. In the wheat itself is the saccharine principle—all the sugar that is needed to make our bread palatable or nutritious. All I ask is that the wheat when ground into flour or meal shall not be so prepared as food, as to lose all of this natural sweetness. It is less likely to do so, if the flour—

at least a part of it—is scalded by boiling water before the yeast is added. Of course the mixture must be below scalding heat before the yeast is put in. But bread loses its natural sweetness by being allowed to rise too long. Sweetness is sacrificed to lightness. We should do our best to secure both. In common baker's bread we have "a stone," or at least chips, when we ask for bread. Much nourishment of the wheaten flour has been fermented away during the rising of the bread. The only thing you can taste, in many cases, is the salt. Indeed, the natural delicious flavor of many grains and vegetables is almost wholly concealed by the too free use of salt in our food. Lately, while having my food brought to my room, I grew very tired of the salted white bread, and the yeast graham bread sweetened artificially, and I told my little daughter about a new kind of bread described in a late journal. Her little hands followed my directions with success.

### Graham Sticks.

Mix together, and knead very thoroughly, not making the dough too hard, graham flour, sifted or not, as you choose, and cold water. Roll into pipe stems, and bake in a hot oven. That is all. The presiding genius of the kitchen looked on in wondering amusement. She said they could not be light without yeast, or soda, or baking powder, or something to *make* them light; and they could not be good without salt or sugar, or something to flavor them. But they were light, and they were good, and every one was eaten with pleasure by the members of the family. They needed good chewing, but that gave us a chance to discover their full sweetness. No doubt they would be improved by the use of sweet milk as "mixing," instead of water, like the graham crackers we make. After feasting on these "sticks"—I know how absurd this sounds to people who dote on "good living," concerning which "more anon"—I could not go back contentedly to yeast bread; so I called for graham gems, and gave the girl directions for mixing them with water—nothing but the graham flour and cold or lukewarm water. I told her to mix the batter a little thicker than for pancakes, so that it would pour out thick and chunky from the spoon, thick enough to pile up a little on the pans, but thin enough to level itself down directly. I was afraid her skepticism would affect the gems, but when she brought me some for my breakfast, they seemed the sweetest bread that I had tasted for some time. So long as we kept a cow, I used either sweet or sour milk for mixing gems, and it has never seemed easy to go back to water gems. But now I eat them with gladness, and hear them called for by the children when they are hungry, and see them eaten without butter or dressing of any kind, with evident relish, as other children eat their cookies. The gem batter must be beaten or stirred very thoroughly, put into hot gem pans, and baked quickly in a *hot* oven—hot when the gems go into it. Those who have not tried these gems, or perhaps have never heard of them, may need to be told that they are best when fresh and warm, but old gems may be made about as good as new by dipping them into cold water, laying them on a plate or tin, and heating them through in the oven. Never cut open hot gems, but break apart.

### Soreness of the Feet.

About a year ago, I wished to make inquiry somewhere how to cure soreness of the larger joint of the big toe. Help came in the way of a hired girl, and this gave a chance for more rest, or only a moderate use of the feet. I thought the case was so bad that some outward application must be made, but mere rest was the only thing needed. Since then, care has been taken that no seams of the shoe come over that joint.

### A Pretty Rug.

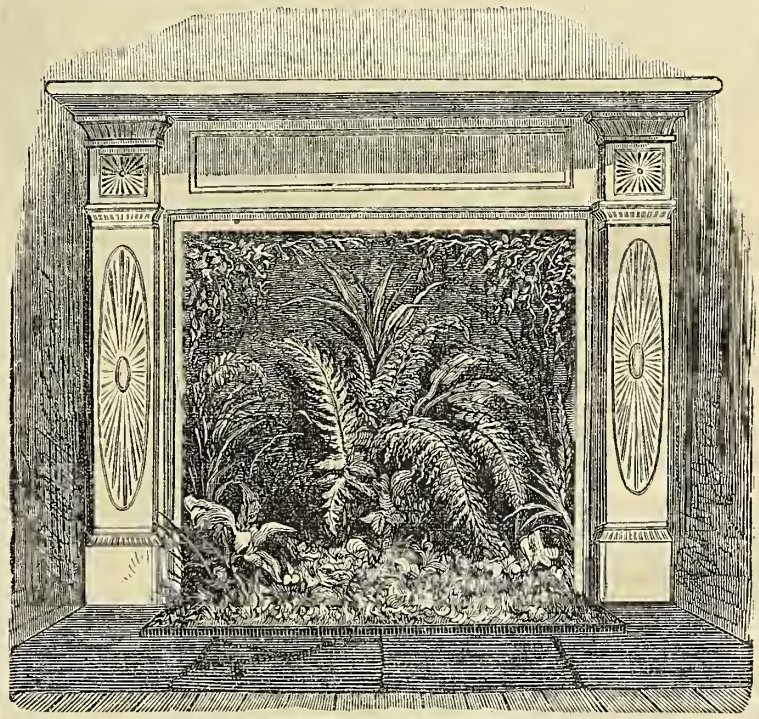
A correspondent tells me of a rug she has lately made of carpet and old pantaloons. She says: "Take an old sack, three feet long and two feet wide; then a piece of narrow striped stair carpet, eighteen inches long and ten inches wide, fastened in the center. Fill out the sack with pieces of the old pantaloons; cut two inches long, inch and a half wide, and rounded at two of the corners, sewed on to imitate fish scales. For a finish, at the edge of the carpet make a double fold of some bright cloth." This fold is put on where the scales join the carpet, I suppose.

### Showy Tarts.

The same correspondent tells me how she puts her tarts together. Roll the crust thin, cut with a cake or biscuit cutter, making three thimble holes in half of the crusts. When preparing them for the table, put the jelly on the plain crusts, and lay one of the perforated crusts on top of each. The jelly fills the holes.

## The Fire-Place in Summer.

A fire-place, large or small, may not only have its unsightliness covered, but it may be made an attractive and beautiful feature of the room by converting it into a fernery. It is well, to prevent all injury from water, to have a shallow pan or tray made of galvanized iron; this should fit the floor of the fire-place, extending as far forward upon the hearth as may be desirable, with its edges turned up all around for about two inches. This is the only expense attending it; all the rest is to be furnished by the woods and fields, and is vastly more easy to those who live in the country than to dwellers in towns—though these, if they have a taste for rambling, will find a way to accomplish it. Moss-covered rocks are preferable; these are to be disposed in a natural manner; woods-earth is to fill every crevice between and under the stones, and fill the pan. Bring home ferns of all kinds as soon as they show themselves, taking up good clumps of earth with them. Place the kinds known to be tall-growing at the rear, the smaller in front, disposing them in an informal manner. Then cover all of the earth with sheets and tufts of moss to make a complete carpet of green. If in getting the moss some of the low plants, such as Partridge-berry and the like, are taken up, all the better. If the fire-place admits of it, arrange some kind of shelf or support within the chimney and *above* the opening, upon which may be set pots or fruit cans of Ivy and other vines, which may hang down naturally, or be trained along the mantle-piece. The engraving of an old-fashioned fire-place thus treated will give an idea of the plan. Most ferns love shade, and if supplied with water, will flourish; when any are found not to like it, replace them by others. The sole care will be watering; let the soil be moist at all times; but never *wet* and muddy; water by sprinkling, as this will keep the plants free of dust and add to their beauty. Those who are fond of such things may not only hide the fire-place, but derive much pleasure from the care of such a fernery.



A FERNERY IN A FIRE-PLACE.

## Household Notes and Queries.

Moths.—Recollect that it is the larvæ—the caterpillars—that do the mischief. These can only come from eggs laid among the clothes, furs, etc., by the winged moth. This moth begins to fly this month, and keeps around pretty much all summer. Put up the articles in something so tight that the winged moth can not get in, and they are safe. The moth is small and can get through a narrow crack, a nail-hole, or other small opening. The case, or box, or wrapping must be *tight*. If a box is used, carefully paper every joint—that is not entirely closed. *Articles can be so closely wrapped in paper that they will be safe.* If the paper covering, box, case, cask, or whatever, is thoroughly *moth-proof*, no preventive is needed. If in doubt about the security, camphor or other strong-smelling thing may be used.

Cleaning Paint.—Paint is sometimes cleaned with wonderful thoroughness—indeed, mostly cleaned off. After a course of soft soap and sand vigorously applied, the paint—what there is left of it—looks very clean. Sand should *never* be used, and some of the soaps sold for scouring which contain either very fine sand or powdered pumice-stone, are about as bad. Successive applications of strong soap greatly injure the paint, and should be rarely used. Fine whiting—to be had at the paint or drug stores, is the best scouring material. Use a flannel dipped in warm water, squeezed nearly dry; dip this in the whiting, and rub the paint with it; then wash off with warm water.

Kalsomine is merely Paris White, put on with a glue-size to prevent its rubbing off. The usual proportions are: a quarter of a pound of glue to six pounds of Paris White. Soak the glue in a quart of cold water until soft, put the vessel containing it in a pan of water, set on the stove, and the glue will soon dissolve. Put the Paris White into a pail, pour on boiling water gradually, and stir thoroughly to remove all lumps; use water enough to make the mixture of the right consistence to apply; then add the glue water, and stir again. The right thickness can be told by trial; if too thick it will not apply evenly. Use a new whitewash brush with long hairs—one that has not been used for lime wash. Stir the kalsomine frequently while using. Do not take up too much upon the brush, and apply evenly. The wall or ceiling will appear in all kinds of streaks until dry. A little practice will make it easy; the trouble with beginners is in having the wash too thick.

Borax and Cockroaches.—Several months ago it was stated that we had tried powdered borax, to drive away or destroy cockroaches without success and had found relief only by the use of "Persian Insect Powder." A lady in Quincy, Mass., kindly gives her experience, which was so different from ours, that we are inclined to think that we were not sufficiently thorough or properly patient. She persevered with the borax and exterminated the insects from her bureau-drawers, and elsewhere, by simply sprinkling the powder along the cracks, etc.

Whitening Piano Keys.—"E. S.," Clinton, O. An English work of recipes, that we have found generally trustworthy, says: ivory fixed in place like that on piano keys can not be subjected to the usual processes for bleaching it, and that the best that can be done is to rub the keys with finely powdered pumice-stone on a damp cloth, and afterwards expose them for some time to direct sun-light.

# BOYS & GIRLS' COLUMNS.

## The Doctor's Talks.

Having in the last two months given a number of illustrations of what is meant by the "Center of Gravity," and shown how necessary it is for us to observe the laws that govern it, it is time to say something about *Gravity*. Had I thought of taking up this subject, I should have begun farther back, and first described some other things about matter. Now I shall have to answer the question that will occur to all of you —"What is matter?"—It is the general name for whatever occupies space—without regard to its *kind*, everything that we can test by our senses, everything that has length, breadth, and thickness, comes under this general term. A *body* is any separate portion of matter whether large or small. Matter has several properties, or qualities, belonging to all its forms. For example, one of these is *magnitude;* we can not imagine any portion of matter so small that it does not occupy some space, does not have surfaces. Another property of matter is called by the rather long name, *impenetrability*, which means that two bodies can not occupy the same space at the same time. There are several other properties of matter, some of which can be

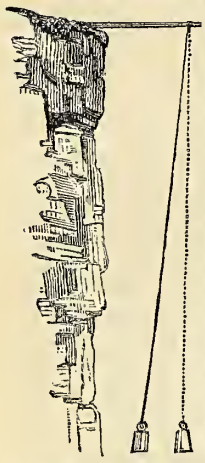


Fig. 1.—GRAVITY.

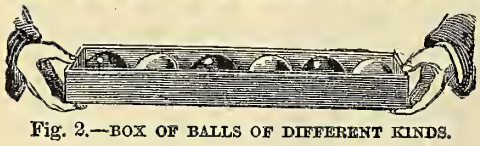


Fig. 2.—BOX OF BALLS OF DIFFERENT KINDS.

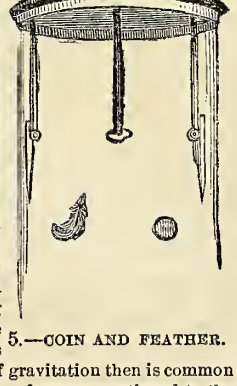
shown by interesting experiments, which I hope to tell you about at another time, but now we must stick to our gravity. We know that matter changes its form and its place—it is acted upon by several *forces*. One of these

Fig. 3.—BOTTOM OF BOX OPEN.

forces is called the *Attraction of Gravitation*. Every body —every particle of matter attracts every other particle of matter. The force of this attraction is proportionate to the mass. As the earth is the largest body, all substances

Fig. 4.—THE BALLS.

are attracted towards that, and we see this attraction most frequently in bodies falling to the earth. If we place some pieces of cork, or chips, in the center of a basin of water, they will in time be attracted to one another, and to the edge of the basin. If a large mass of lead and a small one be hung by strings, it has been found by very careful measurements, that the large mass attracts the small one—that is, the small piece will be drawn towards the larger one. The force which does this is the Attraction of Gravitation. This has been shown also by an experiment at the Shehallion rocks, Scotland, where there is a very high precipice. A weight was suspended by a cord as in fig. 1, and by observing it from a distance with a telescope it was found that the line did not hang perpendicularly, but the weight was attracted towards the rocks. The attraction of gravitation then is common to all bodies, but it acts with a force proportioned to the quantity of matter in each. The earth, presenting the greatest quantity of matter, its attraction overcomes that of bodies for one another, otherwise things upon the surface of the earth would be in strange confusion. You have, no doubt, heard the story that Newton discovered the force of gravitation by seeing an apple fall from a tree; this, like many other good old stories, has been denied, but the fact remains the same. The apple, when its hold upon the tree was broken, was attracted to the earth. This force is acting constantly upon all bodies near the earth's surface. If you hold a stone in your hand the earth is constantly attracting it, and the force you exercise in keeping the stone from falling, tells you the amount of this attraction, or, as we say, is its *weight*. All bodies are attracted equally by the earth, and all fall with equal rapidity. One of the experiments for showing this is given in figure 2; a box with a loose bottom contains balls of wood, cork, iron, lead, etc.; when the fingers that have held the bottom of the box closed are moved to allow it to fall, as in fig. 3, all these different substances fall with equal velocity (fig. 4), and will strike the ground at precisely the same time. It makes no difference as to the time of falling whether the body be large or small. If we let a dozen bullets fall, they will reach the ground altogether; if the bullets are melted together to form one large one, it will fall in the same time that the single small ones do. The slowness with which some bodies fall seems to contradict the statement that all are attracted alike. For example, a sheet of gold-leaf or a feather falls very slowly. This is owing to the resistance of the air, as may be shown by causing them to fall in a vessel from which the air has been removed, as in what is known as the "guinea and feather experiment." It is not an experiment that you can readily make, but as I have performed it a great many times, I can tell you how it is done. There is required a glass cylinder, some four or five feet tall; this stands upon an air-pump, by means of which the air is pumped out of it. At the top of the cylinder, which is shown in fig. 5, are two little stages, which are held in a horizontal position by a button on the lower end of the central rod. On one of these stages is placed a coin, and on the other a feather; by turning the rod, the stages both drop at once—they are shown in the engraving as down—when the coin and feather will fall at the same time; not having the air to interfere with it, the feather will reach the bottom just as soon as the coin.



5.—COIN AND FEATHER.

## Our Puzzle-Box.

### CHARADES.

1. My first is a serpent, my second is anger, my whole grows out of ambition.
2. My first is a pronoun, my second a preposition, my third a pronoun, my fourth an article, and my whole a noted sea.
3. My whole is the nickname of a certain girl who often fastens my first with my second.

### METAGRAM.

In a certain title find—1. To squeeze. 2. To tear. 3. To fasten. 4. To walk. 5. To drink.

### CROSS WORD.

My first is in bellow but not in roar,
My next is in window but not in door,
My third is in sonnet but not in verse,
My fourth is in servant but not in nurse,
My fifth is in apple but not in plum,
My sixth is in finger but not in thumb,
My seventh is in gloomy but not in sad,
My eighth is in angry but not in mad,
My ninth is in evening but not in day,
My tenth is in merry but not in gay,
My eleventh is in bonnets but not in hoods,
My whole is a wild thing that grows in the woods.

### TRANSPOSITION.

(Fill each blank with the same word transposed.)

I saw a man going by with some —— (full of flowers) in his arms; some of the —— were broken, and on one was a large ——. I told him to —— and set them down by the ——.

### RIDDLE.

Mary and Alice, two nice girls,
Were very fair to see,
Sisters they were, indeed were twins,
And so they two were *me*.

Into the orchard once they went,
And sought a certain tree,
And searching in the grass around,
They very soon found *me*.

Again, when Uncle John appeared,
I heard my name repeated—
"Let *me*," he said, "prepare that fruit
Before you ladies eat it." AUNT SUE.

### BIBLICAL ENIGMA.

I am composed of 35 letters:
My 2, 8, 28, 16, 31, 21, 11, was a man of distinguished valor.
My 5, 10, 20, 13, 19, 1, 34, were an ancient people.
My 7, 15, 4, 31, 14, 6, 22, was a province of Asia Minor.
My 11, 33, 20, 22, 16, 26, 32, is a range of mountains in Palestine.
My 14, 10, 20, 29, 3, 22, 18, was a woman of eminent wisdom and holiness.
My 20, 10, 17, 28, 22, 32, 25, was a village of Palestine.
My 27, 13, 29, 35, 24, was something that JOB said was made "by the breath of God."
My 30, 33, 12, 7, 22, 3, 14, is an animal alluded to in Scripture.
My 35, 9, 23, 4, 18, 22, 16, was a city of Persia.
My whole is a Scriptural injunction. ISOLA.

### CONCEALED SQUARE WORD.

1. Oh yes, Will, I stamped the letter properly.
2. It will surely rain to-day!
3. The long looked-for vessel has at last arrived.
4. Robert ornamented his straw hat with a feather.

C. E. A.

### PI.

Shote how canton peek herit now rectess tough ton ot eb strutneed thiw het cetress fo hersot.

**No. 467. A Puzzle Picture**—the artist calls it, though we don't exactly see where the puzzle is. It is certainly a very droll picture, and the more you look at it, the more you don't know who is who, or which is which.

### ANAGRAMS.

1. Mitt, a Sachem. 2. Laughs not. 3. Accost true men. 4. Try a thin plum. 5. Find no gruel. 6. Fiction, Lady Nel. 7. Entice gallery. 8. So pour music. 9. O see sober rig! 10. In sad cool set.

### ENIGMATICAL STORY.

19, 6, 5, and 11, 3, 15 were two 12, 13, 10, 15 little boys, when they 2, 20, 17, 21, 15 that they could spend the Fourth of July at "Uncle Charlie's." They saw the soldiers with their 16, 10, 18, 11, 14, 7, 8—saw the fireworks, and 4, 9, 14, 18, 1 a most delightful day. As they went home they sang my whole (composed of 21 letters).

### PUZZLE.

People all desire to have me,
Lads and lasses, grave and gay—
Everybody seeks and courts me,
No one wishes me away:
Tell me what my name and size—
You see me here before your eyes. A. S.

### ALPHABETICAL ARITHMETIC.

D O I M ) E O M R U S M ( D R C O

D O I M

U R M U

T I M T

T S D S

I M R C

R O C M

C T U E

C R D A. F. CONANT.

### BIBLICAL DOUBLE ACROSTIC.

1. A king of Israel.
2. A figurative sentence, or discourse.
3. A plant of the grass family.
4. A nephew of David.
5. A Samaritan prophet.

Primals and finals name two women of the Bible.

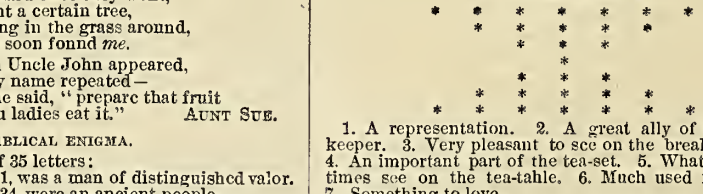
ISOLA.

### CHARADE.

My first is a preposition; my second is a French preposition; my third is a weapon and friend; my fourth is an impression; and my whole is a desirable state.

LOUISE.

### HOUR-GLASS PUZZLE.



1. A representation. 2. A great ally of the housekeeper. 3. Very pleasant to see on the breakfast table. 4. An important part of the tea-set. 5. What you sometimes see on the tea-table. 6. Much used in jewelry. 7. Something to love.

The central letters, read downwards, name something we dread for ourselves, and should dread for others.

### ANSWERS TO PUZZLES IN THE MARCH NUMBER.

PI.—The California Constitutional Convention has adopted a section providing that three-fourths of a jury may render a verdict in all cases except felony.

ILLUSTRATED REBUS.

This is a very good world to live in,
To lend, to spend, to buy, to give in,
But to beg, to borrow, to get a man's own
'Tis the worst world that ever was known

CONCEALED VERBS.—1. Rid, ride, beg, go, do. 2. Swell, prop, run, stand, standing, go, act. 3. Play, lay, say, go, do. 4. Fly, flying, sing, singe, do, put, utter, is. 5. Read, grin, fee, is trace, race, ate, go be.

DOUBLE ACROSTIC.

Iliad—Homer.

I— ne —H
L— —O
I—conis—M
A—uster—E
D— octo —R

GEOGRAPHICAL PUZZLE.—1 Henry. 2 Melville. 3. Fox. 4. Horn. 5. Sleeping bear. 6. Superior. 7. Rainy.

ALPHABETICAL ARITHMETIC.—(*Key*—Only a tiger.) 1064)5205739(4892.

ANAGRAMS.—1. Irrigation. 2. Mathematics. 3. Wearisome. 4 Advocates. 5. Martyrdom. 6. Contrivances. 7. Dauntless. 8. Undesirable. 9. Departure. 10. Governess.

DROP-LETTER PUZZLE.—1. Caravansary. 2. Grimalkin. 3. Denunciatory. 4. Apochryphal. 5. Empyrean. 6. Wintergreen. 7. Predaceous. 8. Pragmatical.

SQUARE WORD.

A Z O V
Z O N E
O N U S
V E S T

NUMERICAL ENIGMAS.—1. Patrick Henry. 2 Periwinkle. 3. Love one another.

CROSS WORD.—Affliction.

## Can a Thing Move and Remain Still?

"Can I believe my own eyes?"—is a common expression with persons when surprised. In many cases, it is safe to reply to this question—"you can't." In former volumes, we have given several curious illustrations of the fact that "things are not what they seem," by showing you what are called optical illusions. Not long ago, we showed how a collection of perfectly circular black spots would look six-sided, in spite of all you could do. We have shown how two lines, exactly parallel, may be made to appear spread apart at one end, by simply drawing other lines across them. We have given two curved figures, one above another, which you were sure were very unlike in size, until they were measured, or when one was put over the other it was seen that they were exactly the same to the breadth of a hair. To make something appear in motion that you know to be perfectly still, is an easy matter. Draw upon a card a series of black circles, one within another, with spaces or circles of white, of the same width between them, to form a sort of black and white target. Now move the card in a circle—you will soon get "the hang" of it—just move it, face towards the eye, as if you were trying to run the central dot around in a circle about six inches across. When you get the right motion, and it need not be very rapid, the whole target will appear as if it were revolving on its center, and you will also see a sort of dim, hazy cross, that seems to be going in the same direction. The effect is most curious and striking, for there is the thing going round and round as plainly as a cart wheel goes round, yet you know that it doesn't budge a particle. It is better to draw the circles upon a piece of card, or of stiff paper, neatly inking every other one to make it as black as possible, but it will be all the better if you can paint them with India ink. It will show very fairly

AN OPTICAL ILLUSION.

by using this target as printed here—fold the paper back, then crosswise, so as to show the bottom half of this page, and move it as directed. "Why is this so?"—will, of course, be asked. It is not so easily explained. If we say it is a confusion of the impressions made upon the eye by parts of the circles "coincident with the path of the card," you will have what the philosophers say, but not any clearer idea than before. The better way will be, as it can not be explained so that every one will understand it, to call it a very curious optical illusion, and amuse yourself and others with its strange motion—or rather what appears to be motion.

## The Doctor's Correspondence.

Another letter from James F. W., and very welcome it is. James is not a "jug-handle correspondent." You will at once wish to know what kind of a correspondent that may be. When you consider that the handle of a jug is "all on one side," you will infer that James is one who gives as well as asks. In answer to his inquiry, I told him last month something about "setting up" large butterflies and moths, and in return he gives his method, and other things that will interest those who are studying insects, or making collections. Concerning

SPECIMENS OF BUTTERFLIES AND MOTHS,

James writes: "Dear Doctor—I was much obliged to you for your hints on raising butterflies. Would you think me impertinent if I suggested an improvement to your method of pinning their wings to a board? I take a piece of shingle, gouge a groove up through the center of it (as you describe in fig. 5, page 149, of the March number). I cut two little slits in the edges of the shingle (as herewith shown in fig. 1), and draw the end of a long piece of thread through one of them. I pin my butterfly (as shown in your fig. 5 and my fig. 1), and then fasten the wings into the required position, adjusting them carefully with a pin, by winding the thread over and over the wings and shingle, and fastening the last end of the thread in the second slit. When the wings are "set," and I remove the butterfly from the wood in the course

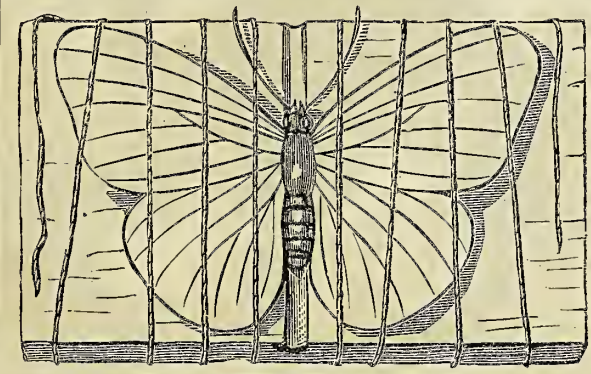


Fig. 1.—SETTING UP A BUTTERFLY.

of a few days, I wind the thread around my shingle, and it is always ready for my next specimen. Shall I tell you how I made my net? [Of course.] I cut from a tree a long stick having two equal, slender, widely-spread branches at the end—a stick shaped like a very long letter Y. Then I fastened the ends together, as in fig. 2. A square of mosquito netting or coarse lace answered for the net. I fastened the edges of this together like a 'jelly bag;' cut off some of the point, then sewed it around the bow part of my stick, and my net (fig. 3) was complete. When I catch my butterfly under the net, I endeavor to get hold of it very carefully *through* the net, and so prevent its fluttering and destroying its plumage; then I take my little bottle of ether out of my coat pocket, remove the cork with my teeth, put one drop of ether on the butterfly's 'nose,' and straightway it becomes a 'specimen.' I am much obliged to you for the suggestion about the Cyanide of Potassium. (I'll be very careful with it, will label it 'POISON!' and put it out of the reach of children and others.) I wish I had known about it before I caught a huge beetle, summer before last. Why I killed that thing seven times!—or thought I did. I gave him ether, camphor, hartshorn, drowned him, smoked him, until I felt sure that if Mr. Bergh knew about it, he would have me arrested for cruelty to animals, but what could I do? I *thought* he was dead every time, and when he would lift up his head and begin to stretch himself, I would say, 'Oh, you poor beast, what am I to do with you!'—I put him under a tumbler with some cockroach powder one day, and in the evening he was 'stretched.' 'At last!' said I, and I pinned him to my wall (which was a simple wooden partition), and went to bed thankful that the poor thing was dead at last. In the middle of the night I woke, hearing some peculiar sound, a sort of regular scratching; got up, struck a light, and if there wasn't my beetle alive once more, dancing around that pin, on the wheel principle, as though he rather enjoyed the exercise. Now, if I had only known about the Cyanide of Potassium, I need not have so prolonged his discomfort and my own. I have been told that it is necessary to sprinkle my chrysalides with water occasionally, as they are expected to be left out in the rain. With thanks, JAMES F. W."

HOW TO MANAGE BEETLES.

The best and quickest way with beetles, large and small, as well as the true "bugs" and some others, is to drown them in alcohol. Keep a wide-mouthed bottle—or, better, two, one for the minute specimens. As soon as caught, pop the beetle into the alcohol, and it is soon beyond all such revival as James describes. The insects may be left in the alcohol for months if need be, or until ready to set them up....Miss Maggie wishes to know

"ABOUT ARTIFICIAL CORAL,

and what it is made of." The real coral, as she no doubt knows, is the product of a sea animal, often incorrectly described as an "insect," and there has been much fine writing about the industry of the minute "Coral Insect" that in time builds up islands through its constant and united labors. There is a "coral-animal," but it is no more an insect than it is a fish. It is a *polyp*, one of those strange compound animals with a manner of life more like that of a plant than of other animals. But I cannot now tell you more about real coral other than to say that it is not *built*. It grows, so to speak, and the animal can no more help or prevent it than you can the growth of your bones. Indeed the ceral itself serves the creature the same purpose that bones do other animals—it strengthens and protects it. Most corals are quite coarse, but the red coral is very fine in texture, takes a high polish, and is of such beautiful color and comes in such irregular and quaint forms that it is valued for ornamental work. Imitation coral is a substance called

CELLULOID,

an article of recent invention and manufacture. The name means something resembling *cellulose*, and that—*cellulose*—is the material of which the minute cells of plants is made. One of the purest forms of cellulose, in the natural condition, is cotton; the fibres of linen are also nearly pure cellulose, and wood of all kinds consists largely of it. You perhaps know that cotton (and other forms of cellulose) may be so treated with acids, that while continuing to look like cotton it becomes very explosive (*gun cotton*), and will dissolve in ether, which common cotton will not. This solution of gun cotton in ether (*collodion*), is used for various purposes as a varnish. It dries and leaves a transparent coating or film, which, while it is not at all like cotton in appearance, is nearly the same substance. This example shows you how cellulose, in the form of cotton may be changed. In making *celluloid* some form of cellulose is dissolved, and so treated in the manufacture that it becomes a mass which may be moulded into a vast number of useful forms, and when dry has

EVERY APPEARANCE OF IVORY,

being white, hard, and taking a fine polish. Celluloid has an advantage over ivory, as having no *grain* it can not crack in any particular direction. Various articles, such as were formerly made from ivory, hard woods, etc., are now made of celluloid. After adding the proper coloring material, celluloid is moulded into the proper shape to form artificial coral, superior to the original in being more durable, and equal to it in every respect save one—it can be furnished more cheaply...."T. Z. S."—Your

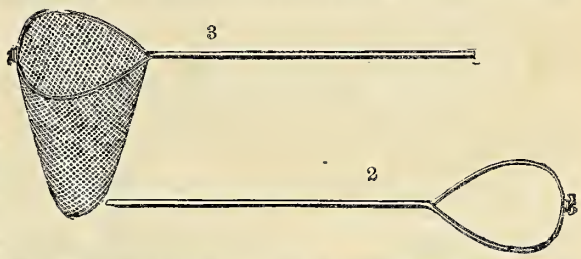



Fig. 2.—FRAME FOR NET. Fig. 3.—THE NET COMPLETED.

question requires more research than I can now give it. It is one of those things that may improve by keeping.

## The American Devil-Fish.

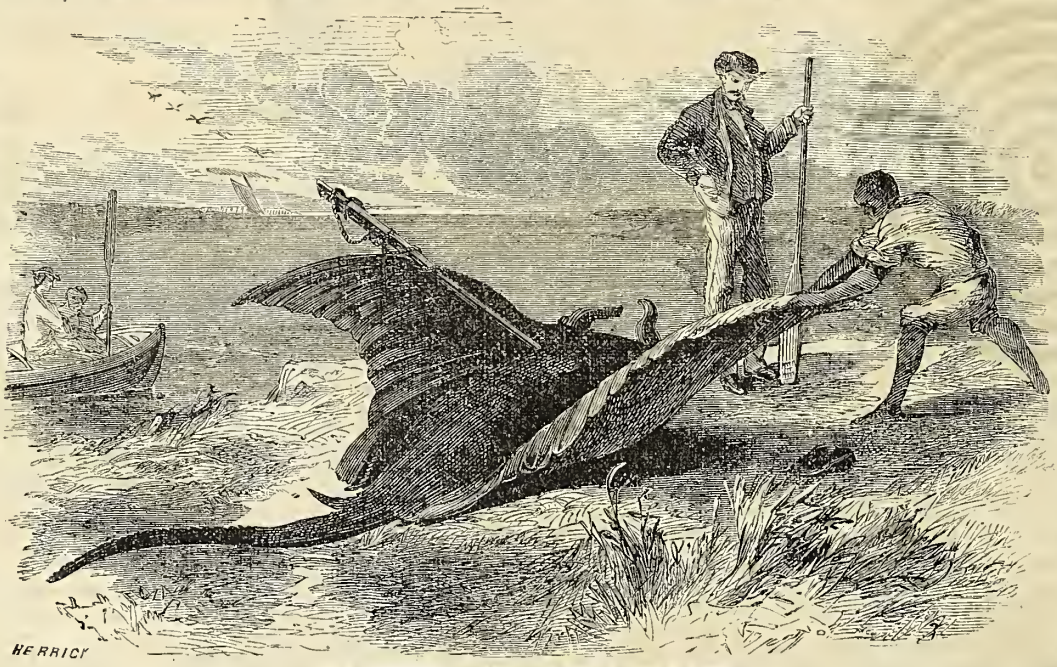
When we speak of the "American Devil-Fish," you naturally suppose that there are other Devil-fishes that are not American, and we may also add that there are Devil-fishes that are not fishes. There are several large creatures of the sea to which the not very elegant name of Devil-fish has been given. One of these, having been an important character in a generally read work of fiction, is widely known, but is not a *fish*. The Devil-fish of which Victor Hugo tells an exciting story is a *Cephalopod*. If you will turn to page 107 in March last, you will find that the class of animals called *Cephalopods* is briefly described in telling AUNT SUE about her "*Squid*." It is there stated that the Devil-fish of the story is very much like an enormous "Squid," with arms 20 or more feet in length, instead of half as many inches. This is all we need to say about that Devil-fish which is not a fish. Some true fishes, creatures with a regular back-bone, are called Devil-fish, and one is so much larger than the others that it seems to have a right to the name. The picture on the next page shows this fish as it lies upon its back. Its form at once suggests that of the Bat, and we do not wonder that the name of "Sea Vampire" (*Vampire* being the name of a large kind of bat) has been sometimes given to it. But what a huge bat—as you can see by comparing its size with that of the negro pulling at one of the wings! Several have been taken that measured 14 to 16 feet from tip to tip of the wings, and about 12 feet from the top of the head to the end of the tail. A fish of such size as this may be truly called a monster. But you will notice that there is very little about this creature that

reminds you of ordinary fishes; boys who live near the sea-coast will at once say, "It looks like an enormous *Stingeree*," if they have not been taught to say "Sting-Ray"—and in fact it does belong to that division of fishes which includes the Rays and the Sharks, which differ from common fishes in many points, but especially in not having a regular bony skeleton, their frame-work being of cartilage in place of bones. Our Devil-fish was first described in 1823, by Doctor Samuel L. Mitchill, a New York physician who was an eminent naturalist. Some men, who had heard that enormous sea creatures had been seen near the entrance of Delaware Bay, fitted out a boat to go and try to capture some of them. In three weeks they came back with a monster which they had killed after much labor and danger. When the animal had been brought to the shore, it took three yoke of oxen, a horse, and the help of 22 men to drag it up the beach to dry land! As the animal lies in the engraving, you can not see its mouth, which is an opening nearly three feet across. At each side of the mouth is what has been called an arm, a feeder, or a feeler; you can see their ends at the head of the animal. They are about two and a half feet long, and have a great number of joints that allow them to move in every direction. These feelers are constantly in motion; by their use the animal catches its food; they can twist around and hold fast to substances, and seem to be about as useful to this water monster as is the trunk to the elephant. The upper surface of the Devil-fish is nearly black, and it is lighter, even whitish, under the belly. The animal is not at all rare along our Southern coasts in summer, and is hunted by parties which go out for the purpose; its liver yields a great amount of oil, which is used for various purposes, while its flesh is made into a manure. It moves through the water by means of a waving movement of its great wings, much as a bird pushes itself through the air, and with a speed wonderful for an animal of such size. This huge creature appears to have its amusements: one of these is to turn a number of summersets at or just below the surface of the water; the other is to stick a portion of one of its immense wings above the water, and wave it back and forth with a rapid and graceful motion. These two habits enable those who hunt the creature to discover where it is; its presence is sometimes, however, discovered in an unpleasant manner by those who do not see the creature itself. It is able to seize very large things by its feelers, and when it once takes hold of a thing it is very slow to let go. Many years ago the loud cries and screams of "murder" were heard in the harbor of Charleston, S. C.; these came from a negro fisherman, who found his fishing-boat and himself going out towards the sea at a most rapid rate; a Devil-fish had picked up the stone used for an anchor, and was going off with it at a quick pace; the poor fellow was rescued before the bar was reached. Another case is told of a planter, with a large boat and eight oarsmen, who anchored for the night in a creek on the Georgia coast; in the night the planter awoke to find his boat rushing through the water, and he at once cut the rope that held the anchor; when daylight came the boat was found to be many miles from the place where it was anchored the night before, and though in this case the Devil-fish was not seen, there is no doubt that it was the cause of the change. Various other accounts are given of the acts of this fish in running off with boats of various sizes by stealing their anchors. The engraving is from a sketch made by a gentleman in South Carolina who several years ago assisted in taking the fish, which is shown lying upon its back, with the harpoon used in catching it still remaining in the body.

THE DODO.

## The Dodo.

Our youngsters just now seem to have a taste for antiquities. One boy wishes to be told about the Pyramids and the Sphinx, while another would learn something of the Dodo. As between the very ancient human structures, and a very ancient natural production, we this time choose the latter, and leave the pyramids, etc., for another time, while we tell the very little that is known about the bird—the Dodo. This bird has special interest for naturalists; a great many animals, including birds, are known to have once lived, as their bones are found in excellent preservation. These animals are mostly quite unlike any now living, but although we have no record of them by some one who saw them many years ago, yet we are just as sure that these strange animals once lived as if we had the records—indeed even more so—for here are the bones, witnesses that cannot be mistaken, to tell us that such creatures, though now quite extinct, once roamed over the earth or in the waters. The Dodo, then, is especially interesting, because, while now found no more, it being as extinct as those creatures referred to, has been seen, described, and drawn while alive. The Dodo was formerly found in Mauritius, and probably some of the neighboring islands; it was first discovered by the early Portuguese voyagers, in 1497, and was mentioned by various writers up to as late as 1697. When the island was first visited, the birds were found in the greatest abundance, and the sailors feasted upon the flesh, which is said to have been excellent. The formation of a colony by the Dutch, in 1644, was the beginning of the end of the Dodo; what with dogs and other animals to destroy the eggs and nestlings, and the colonists who killed the older birds, it rapidly disappeared, and has not been known alive since 1715. Live birds were sent to England and other parts of Europe, and a stuffed specimen was known as late as 1755, when being in bad order, it was destroyed, all but the head and a foot, which some one saved from the flames, probably little thinking that in doing this he preserved the most valuable evidence of the existence of the bird. Besides this head and foot, there are another foot, a skull, and some leg and other bones in various European museums, and about six pictures by different persons, supposed to be taken from life. You will like to know how this bird—which from being abundant has so completely disappeared, that not even a skeleton remains—looked when alive; the engraving, from one of the paintings, will show you. One writer described it as a "gosling enlarged to the dimensions of a swan." Its short, scaly legs were of little use for running, while its very small wings, with a few feathers, could be of no use for flying; and the bird must have lived a lazy, quiet life, with little ability to get away from its enemies when they finally came to the island. The large bill, with the upper one strongly hooked, the clumsy toes, the tuft of curious curly feathers that answered for a tail, are plainly shown; when we add that the general color was greyish, with some black feathers, you will know all that is possible to learn as to the appearance of the bird. Some naturalists have placed the Dodo with the ostrich and its relations, but the present opinion is, that it was an enormous pigeon, and that its great hooked bill that looks so savage was merely for tearing open cocoanuts and other tropical fruits that fell from the trees, as the clumsy creature could neither climb nor fly to reach them. If a pair of live Dodoes could now be discovered, what an excitement they would make among our pigeon-fanciers, though perhaps not as "carriers."




THE CAPTURE OF THE AMERICAN DEVIL-FISH.

**That "Curious Question."**—A person going round the earth eastwardly will gain a day; those going around westwardly will lose a day. When they meet at the starting point, the former will have seen two days more than the other, and by making ten such trips, he will have gained twenty days. See last month, page 149.

### Strongest, Cleanest, Purest!

Dairymen sensibly receive with full credibility, the opinion of so competent and candid an expert as A. W. Cheever, editor of the *New England Farmer*, when he says of the Perfected Butter Color, made by Wells, Richardson & Co., Burlington, Vt "We have used it for several years. and have found nothing equalling it, although we have tested about everything of the kind made in this or the old country. It is the strongest, cleanest, purest and cheapest butter coloring we have ever found and for all we can see, it is absolutely perfect." R. Booker, Whitewater, Wis., says: "It gives a good color without any trouble." Henry Copeland, of Hampton, Ct., says: "Several that have seen butter colored with it say it looks and tastes as well as June butter." It increases the market value of butter, at least four cents per pound.

### Breeders of Fine Dairy Stock

Should at once investigate the **Perfect Creamer** advertised in another column. It will enable them to realize the largest possible yield per cow, and thus enhance the value of their stock, as well as increase *the value* of the product.

### Gigantic Offers.

Your attention is called to the mammoth new advertisement of Mr. Daniel F. Beatty, of Washington, New Jersey, in this month's paper. Mr. Beatty's celebrated Pianos and Organs are so well known throughout the civilized world that they require no word of commendation. Lowest prices, superior workmanship and complete satisfaction have brought this house prominently forward until to-day he stands the only man in his trade who dares to ship his instruments on test trial, and if unsatisfactory refunds not only the price, but all freight paid. No fairer offer can ever be made or even suggested. His sales now amount annually to several millions of dollars, and when it is taken into consideration that a few years ago he was only a poor plow-boy, it must be evident to every reader, that Mr. Beatty is the possessor of rare talent in his vocation. A saving of 5 per cent can be made when two instruments are ordered at the same time, therefore talk over among your friends and neighbors these unparalleled offers on the celebrated Beatty Pianos and Organs, and try to secure for yourselves this special discount.

THE

## Only Sensible Shoe for Children

Are those with the SILVER or

THE A.S.T.Co BLACK TIP UPON THEM.

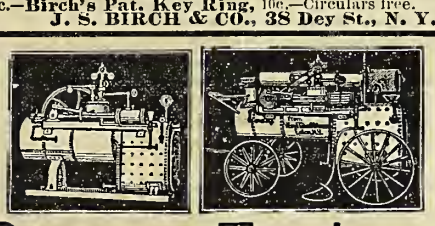
THEY REDUCE SHOE BILLS ONE-HALF,

## ASK YOUR WATCHMAKER FOR

A KEY THAT WILL WIND ANY WATCH

AND NOT WEAR OUT.

By mail 30c.—**AUTOMATIC** Eye Glass Holder, by mail 25c.—**Birch's Pat. Key Ring**, 10c.—Circulars free.
**J. S. BIRCH & CO., 38 Dey St., N. Y.**



## Steam - Engines.

**FOR 1878 AND 1879.**

More effective and more complete, and more readily adapted to the various mechanical and agrienltural uses than any other in the market. Practical improvements accumulated from twenty years' manufacturing experience, with reputation maintained and success established.

Send for Circulars, descriptive, and containing testimonials concerning our **PORTABLE STATIONARY and AGRICULTURAL STEAM-ENGINES.**

**WOOD, TABER & MORSE,**
**Eaton, Madison Co., N. Y.**

## HOWARD & CO., New York.

*Special Announcement in Relation to*

## WALTHAM WATCHES

In Solid Gold and Silver Cases.

**No Nickel Cases.**
**No German Silver or Albata Cases,**
**No Plated or Stiffened Cases,**
**No Filled or Low Grade Gold Cases have ever been sold by us.**

We have sold more Waltham Watches than any house in the country, and every single one in a Solid Gold or Silver Case.

*Note the Latest Reduced Prices:*

| | | | | |
|---|---|---|---|---|
| No. 8, Key-Winder, | $ 9 90 | former price, | | $13 |
| " 3, " " | $12 70 | " " | | $18 |
| " 7, " " | $16 90 | " " | | $20 |
| " 8, " " | $21 80 | " " | | $25 |
| " 10, " " | $29 90 | " " | | $33 |
| No. 8, Stem-Winder, | $13 70 | former price, | | $18 |
| " 3, " " | $16 60 | " " | | $24 |
| " 7, " " | $21 90 | " " | | $27 |
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Statement of our experiments with it, and cultural instructions, free on application.

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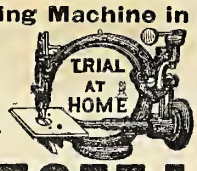


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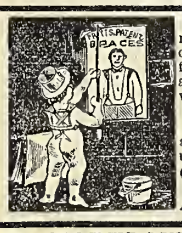


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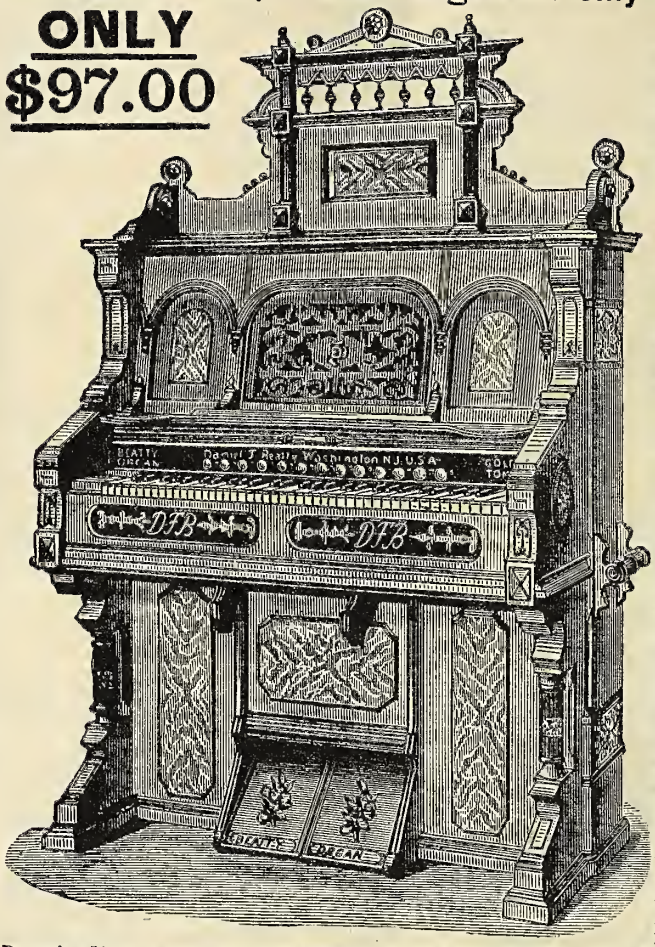


The price of this beautiful Grand Parlor Organ is $375 or, in other words, this is about the price asked for such an instrument by the **Monopolists** Agents I have been offering at wholesale at **$105**, as my very lowest net cash price. I am determined that all shall see my celebrated instruments and judge for themselves, and therefore I offer this beautiful, neat design, to the readers of this paper, **FOR ONLY $97.** Order the instrument, and pay **only after you have tested it at your own home.** Don't want the money until you are entirely satisfied. This is a very fair offer for you. ☞ Description of this magnificent instrument is as follows: **Beatty Organs, Style No. 2100.** A beautiful **Celtic** style of architecture in this case strikes the eye of the connoisseur and stamps it at once as the most baautiful case extant. Dimensions: Height, 74 ins.; width, 48 ins.; Depth, 24 in.; Weight, when boxed, over 350 pounds. **Three (3) Sets of Reeds. Five (5) Octaves. Thirteen (13) Stops. (1) Grand Organ;** (2) Principal Forte; (3) Dulcett; (4) Diapason (5) Hautboy; (6) Principal; (7) Vox Humana; (8) Flute; (9) Violina; (10) Dulciana (11) Echo, (12) **Vox Celeste;** (13) Clarionet. Beatty's Celebrated **Grand Organ** Knee Swell, and Beatty's New and Improved double acting Knee Swell. The case of this instrument is solid Walnut, full French Veneer, and finished in the **highest style of art.** The musical combination excelled by none. All things considered, it is the most desirable style that can be selected. I challenge its equal. ☞ Regular Retail price asked for such an instrument by the Monopolists' Agents, about.....**$375·00** I will sell this beautiful Organ to the readers of this paper, in order to have it introduced, boxed and delivered on cars, **FOR ONLY $97.00** Please send your order by letter or telegraph. **No money required until you are entirely satisfied.** Pay for the instrument only after you have tested it at your own home. If it is not as represented, return at my expense, I paying freight, charges both ways. This certainly is a fair offer. I positively will not deviate from this price. ☞ **Fully warranted for 6 years.** I want this instrument introduced hence this unparallelled offer.

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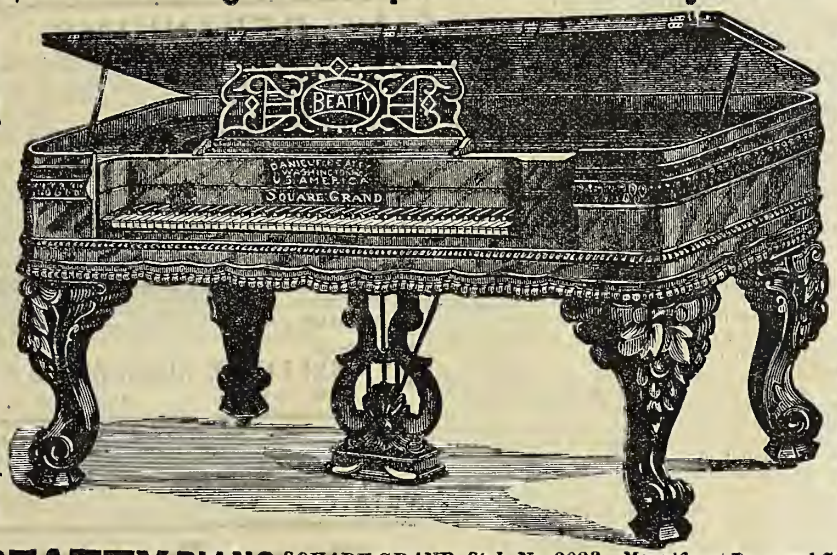


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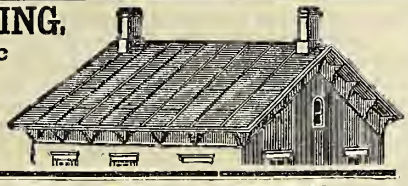

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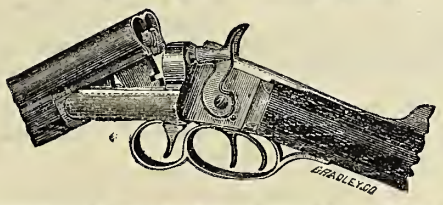

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*containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.*

Continued from Page 176.

**In justice to the majority of our subscribers, who have been readers for many years, articles and illustrations are seldom repeated, as those who desire information on a particular subject can cheaply obtain one or more of the back numbers containing what is wanted.**

**Back numbers of the "American Agriculturist," containing articles referred to in the "Basket" or elsewhere, can always be supplied and sent post-paid for 15 cts. each, or $1.50 per volume.**

**Cover for a Drain.**—"G. E. P.," Booth Bay, Me. Spruce timber is not very durable when used to cover drains or culverts. It will last longer if it is flattened and the bark and sap-wood taken off. It will probably last 6 or 8 years if 8 inches thick—that is, 12-inch logs flattened to 8 inches.

**Shoe-Polish.**—It should have been stated that the medal awarded at the Paris Exposition for shoe-dressing was for the "Satin Polish," long advertised in our columns by B. F. Brown & Co., Boston—and to *no other.*

**Remedy for Poison Laurel.**—"G. L.," Machias, Me. The usual remedy for poisoning with sheep laurel is to give half a pint of melted lard or sweet oil. This appears to neutralize the poison, and at the same time helps to remove it from the stomach and bowels in a short time. Goats are as easily poisoned by it as sheep.

**Light in the Stable.**—"C. C.," East Machias, Me. A stable should be well lighted, and the window should be in front of the horses. A long narrow sliding window, placed 5 or 6 feet from the floor, so as to cast the light from above, is best. If hay-shutes and stairways are found too cold, they can easily be closed by trap-doors. Horses enjoy plenty of light. If their eyes are weak, the light may be softened by "dabbing" the glass with a stiff brush held perpendicularly to it and dipped in white paint. This gives the effect of ground glass.

**Crop for Wet Mucky Land.**—"A. S." Oats is the best crop for moist swamp meadow land. It is also a good crop to sow down such a piece of land with. Sow 2 bushels of oats per acre, and seed down with 4 quarts of timothy and 1 bushel of red-top per acre.

**Stretches in Sheep.**—"G. H.," Columbia Co., Ohio. Stretches are caused by indigestion. The sheep suffering from colicy pains, stretches itself with its fore and hind legs apart. It is cured by a simple purgative. A handful of salt acts as a purge, and restores the digestion. One ounce of Epsom salts, with a little ginger, will have a more certain effect. Any ruminant when fed upon dry feed and deprived of ample water, or when given water so cold that it cannot drink enough, suffers from indigestion and impaction of the rumen, and this is a frequent cause of disease, costiveness, scours, dysentery and bilious disorders.

**Treatment of a Bull Calf.**—"N. A. R.," Lyndon, Kansas. A bull calf needs no extraordinary treatment. Sufficient feed to keep him in good growing condition is all that is required. Such feed should now consist of hay and two quarts per day, in two feeds, of ground oats, corn, and wheat or rye bran. He should have occasionally a pint of linseed meal, be kept clean, and well stabled. Some exercise in a yard will be beneficial. He should be kept securely tied, alongside the other stock, and not tied up in a stall out of sight of other animals. Over feeding is injurious.

**Bean Weevils.**—Mrs. "H. G. H.," Moor's Hill, Ind., writes that beans planted so late in the season, as to mature just before frost will escape the weevil.

**Sunstroke in Horses.**—"M. B.," Merrill, Iowa. During very hot weather horses should be protected from the sun by a shade over the head and a *white* linen sheet over the body. A wet sponge should be kept on the head. A loose collar should be worn, and the general health kept vigorous. It is not so much the heat upon the head that causes sunstroke as the heating of the entire system. For treatment, cool the system rapidly by dashing cold water over the limbs, applying ice to the head, temples, neck, and legs, and wherever a pulse can be felt.

Cows, as well as horses, were sunstruck the past summer, even in shaded yards and stables, from the heat of the air as well as from its "closeness" or impurity. No alcohol should be given; in your case this may have caused death by the inevitable reaction when the effect of the stimulant ceased. Instead of any alcoholic stimulant injections of 2 or 3 drams of muriate of ammonia dissolved in 4 ounces of water may be given, and the neck and legs rubbed with mustard water (one ounce in a pint of water), giving continued friction with a coarse cloth. As soon as the pupils of the eyes begin to dilate improvement may be looked for. If the skin is very hot and dry, the whole body may be sponged with cold, but not ice-cold, water, and afterwards rubbed gently, but vigorously, with a dry rough cloth.

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**Romney Marsh Sheep.**—"J. L. G.," Merrimae Co., N. H. There are no Romney Marsh Sheep in this country that we know of. It is a breed that would doubtless fill an important place both for wool and mutton, and it would probably be a profitable sheep to import. They can be purchased abroad at very moderate prices, as they are not "fancy stock."

**Barn or Granary Weevils.**—A correspondent in Pa., asks for the best method of clearing a barn of weevils. If any of our readers have succeeded in doing this, we shall be glad to hear from them. But it is not necessary to send us the old remedy: "Burn the Barn."

**How to Treat Mange.**—"J. R.," North Topeka Kans. Mange is caused by a very small insect, which burrows in the skin, produces irritation and disease, and destroys the hair follicles. It should be treated by sulphur and lard oil, mixed together by rubbing thoroughly. The mixture should be rubbed into the skin; if there are scabs, these should be soaked in warm water and broken up, when the sulphur ointment should be rubbed in.

## Catalogues Received.

### SEEDSMEN.

W. E. BOWDITCH, 645 Warren St., Boston, Mass.—Besides all kinds of seeds, offers florists' plants, etc.

W. ATLEE BURPEE & Co., 221 Church St., Philadelphia, Pa.—A supplementary list offering several specialties.

SAMUEL N. COX, Saint Joseph, Mo.—Garden and agricultural seeds in a catalogue of exceeding neatness.

CROSSMAN BROTHERS, Rochester, N. Y.—Large, full, abundantly illustrated and instructive, as usual.

FRANK S. PLATT, New Haven, Conn.—A very full list, showing freshness and originality throughout.

### FLORISTS.

N. ADMIRAL, Danville, Ill., is a new comer in the business, and starts with a full stock of new and old plants.

ELLWANGER & BARRY, Rochester, N.Y., issue separate catalogues of their floral departments. We have at hand a list of greenhouse and bedding plants, and a rose catalogue, which is also a treatise on rose culture.

JOSEPH T. PHILLIPS & SON, West Grove, Pa., make a specialty of roses, and offer a general stock.

STORRS, HARRISON & Co., Painesville, Ohio.—In February last we noticed the full nursery catalogue of this firm; they now send an equally full list of florists' stock.

GEONGE SUCH, South Amboy, N. J., besides his remarkable general catalogue, issues each spring a list of plants in demand at that season. The lists of gladiolnses, cannas, lilies, etc., are very full and choice.

A. WHITCOMB, Lawrence, Kansas.—Neat, full, and select, are terms which describe this catalogue.

W. B. WOODRUFF, Westfield, N. J.—Last month we said "fruit stock," when it should have been *florists'*.

### NURSERYMEN.

Under this head are placed those who deal in small fruits only, as well as general nurserymen.

BUSH & SON & MEISSNER, Bushberg, Jefferson Co., Mo.—Their annual list of grapes is remarkably full and is condensed and classified in the same admirable manner of former years. Also the leading small fruits.

ELLWANGER & BARRY, Rochester, N. Y., issue no less than five distinct catalogues, besides occasional special lists. When these catalogues are bound in one—as in the volume before us, they give one an idea of the immense variety contained in this, one of the leading nurseries of the world.

JOSEPH FNITTS, Macedon, N. Y., makes a specialty of small fruits and sends wholesale list.

C. H. & J. H. HALE, South Glastonbury, Conn.—Small fruits with several specialties; family collections low.

CHARLES HURD should put his place of business on the first page; we have to look to the very end of a full descriptive catalogue of small fruits to ascertain that he is at Manistee, Mich.

THOS. JACKSON, Portland, Me.—Sends his 29th wholesale list, which is specially full in evergreens.

THOMAS MEEHAN, Germantown, Pa., sends his very full wholesale catalogue, with a separate list describing some specially desirable trees and shrubs, and another of small stock that may be sent by mail.

JOHN C. NELTNOR, Turner Junction, Ill.—Exceedingly neat special lists, which give much useful information.

H. M. THOMPSON & SON, St Francis, Wis.—Evergreens and forest-tree seedlings a specialty, with other stock.

### FOREIGN CATALOGUES.

J. A. SIMMERS, Toronto, Ont., offers, besides seeds of all kinds, a large and varied florists' stock.

MCBROOM & WOODWARD, London, Ont.—A very full seed catalogue.

H. HILDMANN, Berlin, Germany.—A large collection of succulent plants.

A. MORENO Y BALAGUER, Havana, Cuba.—An immense catalogue of his *Establicimento Mixto*, which has everything from a meat-chopper to a farm steam engine of our best makers, besides a vast amount of trash.

### LIVE STOCK, POULTRY, ETC.

BERKSHIRE SWINE are offered by Jas. M. McCann, Bridgeport, W. Va.

POULTRY AND EGGS.—H. S. Anderson, Union Springs, N. Y....Louis Anderson, Flemington, N. J....N. D. Forbes, New Haven, Conn., makes a specialty of Rose-comb Leghorns....J. T. Lovett, Cornwall-on-the-Hudson. All the best strains and poultry appliances....M. B. Rowe, Fredericksburg, Va. Land and water fowls....S. C. Satterthwait, Aiken, S. C. A large variety, including turkeys, ducks, and geese....The Salisbury Company, John Salisbury, Jr., Sec., Nyack, N. Y. — Illustrated catalogue of poultry and pigeons.

### AGRICULTURAL AND OTHER MACHINERY.

ADRIANCE, PLATT & Co., 165 Greenwich St., New York.—When we say that this firm makes the Buckeye Mower, the Adriance Reaper, and the Buckeye Mower and Reaper—it is not necessary to add anything more than that their catalogues are as elegant as their machines are excellent.

W. ATLEE BURPEE & Co., Philadelphia, Pa., offer Corn Huskers and Corn Shellers.

C. AULTMAN & Co., Canton, Ohio.—Besides being the great Western makers of the Buckeye Mower, and Mower and Reaper, which they describe in a beautiful catalogue, they devote a similar pamphlet to the Sweepstakes Thresher, this, with the horse power and steam engine used to run it are amply illustrated.

STEPHEN FREEMAN, Racine, Wis., makes every possible thing in iron in the way of Aquaria, Ferneries, Brackets, Stands, Window-garden boxes, and many more, for which see his pamphlet.

HAGERSTOWN (Md.), AG'L. IMPLEMENT Co., makes the Fertilizing Drill, Victor Clover Machine, Horse Powers, Horse Rakes, etc., and describe and illustrate them.

LLOYD, SUPPLEE & WALTON, Philadelphia, describe the merits of the Pennsylvania Lawn Mower made and sold by them.

LOOMIS & NYMAN, Tiffin, Ohio, make the Well-boring and Rock-drilling Machine, which they describe in full.

C. C. PHILLIPS, 4,048 Girard Ave., Philadelphia, describes his Vertical French Burr Grinding Mills in a well illustrated pamphlet.

G. WESTINGHOUSE & Co., Schenectady, N. Y., illustrate their well-known Threshers, Clover Hullers, Horse and Steam Powers, etc., in an ample catalogue.

GARDNER B. WEEKS, Syracuse, N. Y., offers in his catalogue everything that can be needed in a dairy, large or small, from a steam engine to a steneil plate.

**Improvement in Salt Manufacture.** *From the "American Dairyman," April 3d.* "Whether people are familiar with and use Thomas Higgin & Co.'s Eureka Salt or not, they must admire the enterprising and progressive spirit of that firm. It is only about three years since the manufacture of this improved salt was begun, and the statistics of importation now show the following wonderful increase:

| | |
|---|---|
| In 1876..... | 5,950 sacks |
| In 1877..... | 32,800 " |
| In 1878..... | 69,045 " |

When we take into consideration the prejudice naturally existing in favor of old established brands, this progress is simply wonderful, and forces the conviction that there must be a basis of superior intrinsic merit behind it. Whatever differences there may be in the processes by which salt is manufactured, even the uninitiated can understand results."

Explanatory of the above we would say that "The present is an age of progress; the locomotive has superseded the stage-coach, refined sugar has taken the place of raw sugar, new process flour, that made by the old process, and improved dairy methods have supplanted those heretofore esteemed good. Salt is no exception to the general march of improvement, as the result of Mr. Higgin's process shows." It costs far more to manufacture this salt than any other, but its price is but little higher than the Ashton brand, with which dairymen should compare it. The difference in expense between using the best and the poorest salt is too small to consider for a moment (less than $^1/_{30}$th of a cent per pound on butter).

Ask your salt dealer for *Higgin's Eureka Salt*, and do not be put off with arguments that because another brand was once considered the best, that it always must continue to be so. TRY AND JUDGE FOR YOURSELVES.

Respectfully, etc., H. K. & F. B. THURBER & Co., Importers, New York.

Most of the best creameries in this country are using it. Send for a descriptive circular.

**Makers of Gilt Edge Butter,**

Or those that desire to become such should use **The Perfect Creamer,** advertised in another column. Butter made by its use is always rated Gilt Edge, and commands ready sale and an extra price.

**ATLAS Portable ENGINE.**

Send for Illustrated Descriptive Circular.
ATLAS ENGINE WORKS, Indianapolis, Ind.

**THE NEW IMPROVED PATENT BAXTER**

PORTABLE ENGINE, owned and manufactured exclusively by J. C. TODD, at Paterson, N. J., and sold at 10 Barclay St., New York, and by my agents in different cities. This last invention is a great improvement on the old style, being simplified, and is sold at greatly reduced prices, which are as follows, viz.: A 1 h. p. engine and boiler, complete, ready to run, for $125; 1½ h. p., $175; 2 h. p., $225; 2½ h. p., $250; 3 h. p., $275, and 4 h. p., $350. Larger sizes in proportion. Send for circulars.

**GERANIUMS**

Bellevue Nursery Company, Paterson, New Jersey.

For Bedding and Market. Best Kinds Only.

**NEW ZONALS.**—Ethel Beale, New Life, Bridal Bouquet, White Wonderful, and Magnificent, $5.00 per doz.

**DOUBLE ZONALS.**—30 sorts, $2.00 per doz., $12.50 per 100.

**SINGLE ZONALS.**—150 sorts, $1.50 per doz., $10.00 per 100.

**NEW ROSES.**—Madame Welch—Tea. Mabel Morrison—H. P. Queen of Beaders—Bourbon. $1.00 EACH.

**ROSES.**—Cornelia Cook, Duchess of Edinburgh, Niphetos, Perle des Jardin, Perle de Lyon, Douglass, and La Sulphide, 50 cents each.

**COLEUS.**—All best varieties $1 per doz., $6 per 100.

**VERBENAS.**—50 best varieties, $3.00 per 100. Rooted cuttings, $1.00 per 100. $9 per 1,000.

Address
**BELLEVUE NURSERY CO.,**
P. O. Box 655. Paterson, N. J.

**SWEET POTATO** Plants. **Early Peabody.** Nansemond, Jersey, Southern Queen, Early Red, Bermuda. Mail, $1 per 100; $2 per 300; Express, $1 per 400; $2 per 1,000; $8 per 5,000; $15 per 10,000. Write for Circular. W. W. RATHBONE, Sweet Potato Culturist, Marietta, Ohio.

**The FEARLESS.**

Stands unequaled for ease of team, the Horse-Power runs, as shown by the records, with **more than one-third less friction** than any other. The only machine awarded a

**CENTENNIAL MEDAL**

on both Horse-Power and Thresher and Cleaner, at the Centennial Exhibition, as shown by Official Report, which says: "**For special features in the Power to secure light running and minimum friction. For the ingenious form of the Straw Shakers, which insure the proper agitation to separate the grain from the straw.**" For Catalogue, Price-List, and full report of trial, address
MINARD HARDER, Cobleskill, Schoharie Co., N. Y.

**Fernwood Farm, Cazenovia, N. Y.**

Will sell Guernsey Bull Neptune. Dropped at sea April 25, 1877. Dam imported by Chas. M. Beach, of Hartford. To be delivered not before May 25th. His Calves will be shown.

**CALIFORNIA LANDS,**

large or small tracts; homes or investments for sale by McAFEE BROTHERS, 202 Sansome St., San Francisco, Cal.

**FREDERICKS' EQUALIZER**
**Applied to Reaper.**
Manufactured by
M. E. Bunger & Co.,
INDIANAPOLIS, IND.
Ask your Dealer for it.

**THE OPPENHEIM**
**DOUBLE BUGGY.**

Instantly changed from a neat Buggy into a roomy 4 passenger Carriage. Entirely new principle. No rattling or shaking. No half-and-half look about it. Send for illustrated price list. New Haven, Conn.
**THE OPPENHEIM M'F'G CO.**

**Building Felt.**

This water-proof material, resembling fine leather, is for outside work (*no tar substances used*) and inside, instead of plaster. Felt carpetings, etc. Send for circular and samples.
**C. J. FAY, Camden, N. J.**

"GET THE BEST."

# The Genuine Blanchard Churn.

**Five Sizes Made for Family Use. They Continue to be the Standard Churns of the Country.**

## The Blanchard Cylindrical Factory Churn.

**FOUR SIZES MADE FOR FACTORY USE.**

They are made of perfect stock, and the best workmanship, and are strong, simple, efficient, convenient and durable.

## The Blanchard Power Butter-Worker.

**A NEW AND IMPORTANT INVENTION.**

On receiving the retail price ($20), we will send one of these Power Butter-Workers to any responsible party, and *guarantee satisfaction*, or the money will be refunded.

It is a surprise and delight to see how the hardest part of dairy labor is, by this ingenious machine, made so simple and easy that a child fourteen years old can do it all.

This is the *only* Butter-Worker made which can be successfully operated with power. It will save its cost every season.

Address the Inventors and Sole Manufacturers,

**PORTER BLANCHARD'S SONS, Concord, N. H.**

The above goods may be obtained of any dealer in *really first-class* Dairy Implements in the United States.

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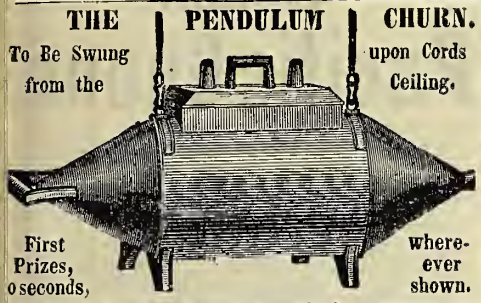
**THE PENDULUM CHURN.**

To Be Swung from the upon Cords Ceiling.



First Prizes, 9 seconds, wherever shown.

The best, simplest, easiest worked of all churns; the handiest, easiest cleaned, and purest. No dasher, paddles, or inside work of any kind to injure the grain of the butter. It combines the most perfect aëration with the greatest desirable rapidity of churning, surpasses all dash and crank churns in both the *quantity and quality* of the butter, and *washes* the butter so quickly and perfectly that no working is required except for salting; takes up no floor room at any time, and is hung up out of the way when not in use.

**DAIRY SUPPLY CO., Sole Makers.**
P. O. Box 416. **No. 261 & 263 Greenwich St., N. Y.**

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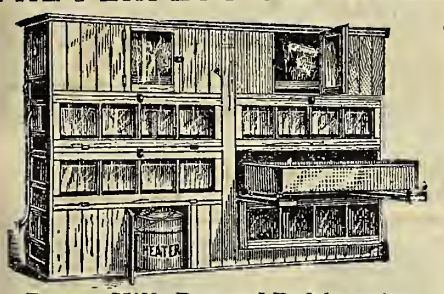
# THE PERFECT CREAMER.



**Bureau Milk Pan and Refrigerator**

Makes more and better Butter, with less labor, than other systems. Adapted to hot or cold seasons, or any situation; strongly recommended by best authorities; excludes flies and dirt; keeps cream and butter perfect. Received highest prize at New-England Fair and at many others. Prices low and terms easy. Illustrated Circular free. Bureaus furnished for any large pans. **J. F. FERGUSON**, Patentee, Burlington, Vt.

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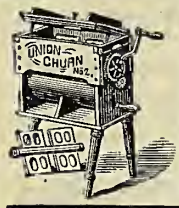

**SOLD AT GOLD PRICES!**
The Original Improved
**UNION CHURN.**

Introduced 14 years ago, and the acknowledged standard churn of the country. Easily operated and easily cleaned, making beautiful butter by the extra working of the dasher on the butter while churning. Our Union Churn has been awarded the first prize over all competitors at twelve different State Fairs. Every Churn warranted. Address TIFFIN UNION CHURN CO., Tiffin, Ohio.

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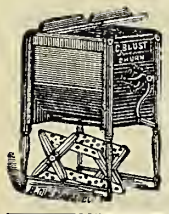

## Self-Recommending Churn.

**Extraordinary Offer.**

If you want to get a churn, we will send you one to try, and if it gives entire satisfaction, you can remit us the price of the churn less the freight; and if not, you can return the churn to us, at our expense. Address

BLUST & CO., Manufacturers,
Mansfield, Ohio.

*Send for Circular and Price-list.*

---

**Rectangular Churn.**

Price greatly reduced. Cheapest and best in market. Six sizes made. Simple, efficient, and *always reliable*. No inside fixtures to turn or keep clean. 50 per cent in labor saved. Cream all churned alike, butter *washed, salted and freed from buttermilk* in the churn. Six sizes of the Square Box churn made.

Churns made of the best material and *warranted* exactly as represented. Circulars free.

**CORNISH & CURTIS, Fort Atkinson, Wis.**

---

**BUTTER.** A new book on Butter-Making, sent free on application. Address W. P. EMMERT, Freeport, Ill.

---

**$500 PRIZE BUTTER** Makers that took the **ten FIRST** prizes ($500 in all), at the great Dairy Fair, **USE OUR**

**PERFECTED BUTTER COLOR**

It was awarded **International Diploma** for "*Superior Purity, Strength, Perfect Color*, and *Permanence*."

*Send for copy of their Testimonials.* Always gives **gilt-edge** color. Ask your druggist or merchant for it: or to know what it is, what it costs, where to get it, write to **WELLS, RICHARDSON & CO.**, Proprs., Burlington, Vt.

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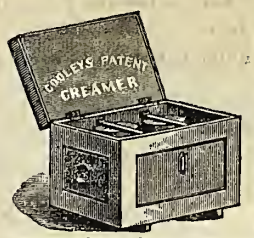
# COOLEY CREAMER.




Supersedes large and small pans for setting milk.

It requires no milk-room.

It requires capacity for one milking only.

Impure air, dust, or flies, can not reach milk set in it.

It makes more butter, because it raises all of the cream, and the quantity is never lessened by unfavorable weather.

It makes better butter. It requires less labor. It is cheaper.

Butter made by this process took the **Highest Award** at the **International Dairy Fair**—and brings the highest prices in all the great markets.

Send stamp for Dairyman to

**VT. FARM MACHINE CO.,**
**Bellows Falls, Vt.**

---

**A PERFECT BUTTER-SALTING SCALE.**

Every pound of butter salted alike. Salts from three-quarters to one and a quarter ounces to one pound of butter. No MISTAKES. Will WEIGH ANY ARTICLE from ¼ oz. to 64 lbs. No Dairyman or Butter-Maker should be without one of these SCALES. Warranted to give satisfaction, or money refunded. Sent C. O. D., or on receipt of price—**$5.** Send stamp for Circulars. Address BUNNELL & BROWN, Guilford, Chenango Co., N. Y.

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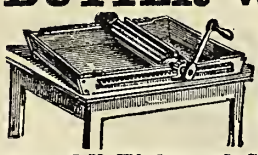
# BUTTER WORKER.



*The most effective, simple and convenient* yet invented. **Works 30 lbs. in less than 5 minutes,** *thoroughly working out buttermilk* and *mixing the salt.* **AGENTS WANTED.** Send for circular.

**A. H. REID,**
**6 N. Eighteenth St., Philadelphia Pa.**

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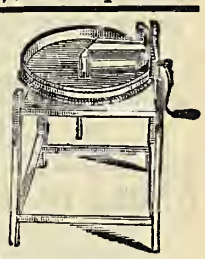
**LILLY'S PATENT**

# BUTTER-WORKER



is now acknowledged to be the only complete and effective self-feeding machine in the market, mixing the salt and imitating hand-work to perfection. Send for circular and see the list of prominent dairymen now using them.

**C. H. R. TRIEBELS,**
**316 Race St., Phila., Pa.**

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BACK VOLUMES OF

# American Agriculturist.

The publishers of the *American Agriculturist* can supply any of the back volumes of that paper from the Sixteenth to the Thirty-seventh. These volumes contain more varied and interesting information on all matters pertaining to the Farm, Garden, and Household, than can be obtained in books costing three times as much money. Price of each bound volume, at the Office, $2.00; sent post-paid, $2.30.

ORANGE JUDD COMPANY, 245 Broadway, N. Y.

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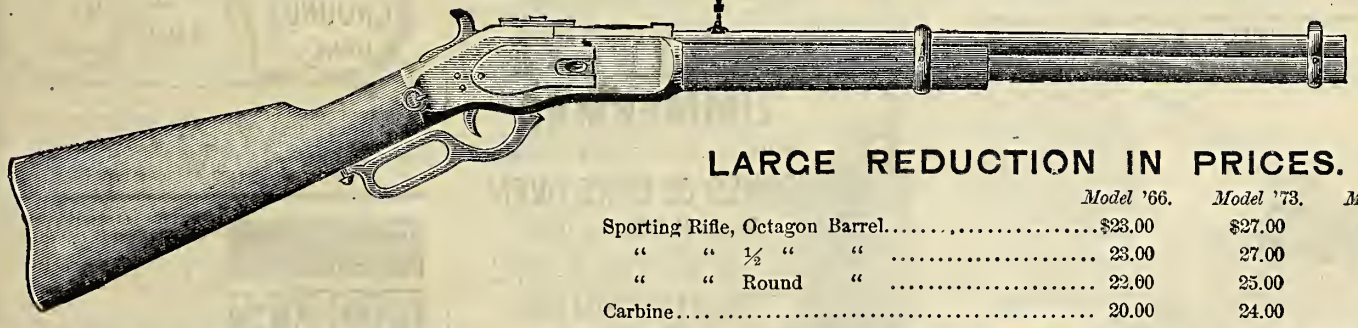
# Winchester Repeating Fire Arms.



## LARGE REDUCTION IN PRICES.

| | *Model '66.* | *Model '73.* | *Model '76.* |
|---|---|---|---|
| Sporting Rifle, Octagon Barrel | $23.00 | $27.00 | $35.00 |
| " " ½ " " | 23.00 | 27.00 | 35.00 |
| " " Round " | 22.00 | 25.00 | 32.00 |
| Carbine | 20.00 | 24.00 | 27.00 |

**EVERY VARIETY OF METALLIC AMMUNITION AT THE LOWEST MARKET RATES.**

SEND FOR ILLUSTRATED PAMPHLET.

**WINCHESTER REPEATING ARMS COMPANY,**

**New Haven, Conn., or 245 Broadway, New York.**

Agent for the Pacific Coast, JOHN SKINKER, 115 Pine St., San Francisco, Cal.

## ESTABLISHED 1861.

**For the last ten years under the supervision of a Professor of Chemistry,** whose whole time is given to our business. **All raw material,** as well as **finished products,** are carefully analyzed; under no other system can a reliable fertilizer be made. Each package bears a correct analysis of its **contents of plant-food,** which analysis **we guarantee to be true in every particular!** A long experience, complete works, and large business, enable us to buy raw materials and manufacture our goods, to the best advantage, so that we sell the **best quality of goods** at the **lowest possible price!** Our "Plow" fertilizer is a "complete manure," containing **every element required,** and in proper proportion, to produce **any crop,** and is especially noted for its **superior mechanical condition,** very **dry,** and finely pulverized, in **perfect** condition for broadcasting or drilling. Analyzes 2½@3% per cent Ammonia, 8@9 per cent Available Phosphoric Acid, 2@3 per cent Potash. Price, $40 per ton. Delivered on cars or vessel, in New York, Philadelphia, Wilmington, Del., or Baltimore, Nett Cash. When ordered in lots of one ton and over, a discount of five per cent will be allowed from this price.

**WALTON, WHANN & CO.,**
**Wilmington, Del.**

28 South Wharves, Phila.; 16 Bowley's Wharf, Baltimore; 40 S. Broad St., Atlanta, Ga.; 2nd St., below Poplar, Macon, Ga.

# NEW EXCELSIOR LAWN MOWER.

ROLLER, SIDE & BACK WHEEL.

## Reduction in Price.

**Less Weight. Lighter Draft.**

It has been adopted and can be seen in **Practical Operation** in the **Public Parks** of **New York, Brooklyn, Boston, New Haven, Cleveland, Chicago,** and almost all the **Prominent City Parks in the United States and Canadas.**

Roller Mowers, 7 Sizes. Side Wheel, 6 Sizes.

Back Wheel Mowers, 5 Sizes. Horse Mowers, 4 Sizes.

**NEW and POPULAR CROQUET MOWER, $10.**

Our new Horse Mower is conceded to be the **LIGHTEST** and **BEST** Horse Lawn Mower ever made.

N. B.—Horse and Hand Lawn Mowers are alike guaranteed in every respect. Address

**CHADBORN & COLDWELL M'F'G CO.,**
*Send for Illustrated Price-List.* **NEWBURGH, N. Y.**

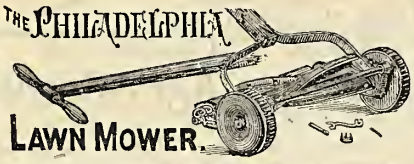
**CITY AND COUNTRY TRADE**
SUPPLIED WITH THE

## Celebrated Excelsior Lawn Mower.

**H. B. GRIFFING,**
**60 Cortlandt Street, N. Y. City.**

## Ahead of all Competition!

1879. THE PHILADELPHIA LAWN MOWER. 1879.



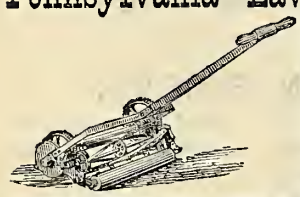
**SEVEN SIZES FOR HAND USE.**
**Weighing from 32 to 51 lbs.**
**THREE SIZES FOR HORSE POWER.**

The *complete victory* and highest awards at the exhaustive Field Trial at the Paris World's Exhibition in 1878, together with those at the great hundred day trial at the Centennial in 1876, prove that these machines fully maintain their reputation as the **best** Lawn Mower yet made. Do not buy worthless imitations, when the genuine can be had for the same money.

**GRAHAM, EMLEN & PASSMORE,**
Patentees and Manufacturers,
**631 Market St., Philadelphia, Pa.**
Send for Descriptive Catalogue with prices.

**THE 1879**

## Pennsylvania Lawn Mower.



This machine embraces all the advantages of a light and durable Lawn Mower. Points of superiority claimed: Lightness combined with strength in construction; easiness of adjustment; easiness in securing and adjusting the handle; the least liability to obstruction from clogging, either in short or (for a lawn mower) high grass; lightness or easiness of running whilst being worked; its attractive appearance. Every machine warranted. Address

**LLOYD, SUPPLEE & WALTON,**
**Philadelphia.**

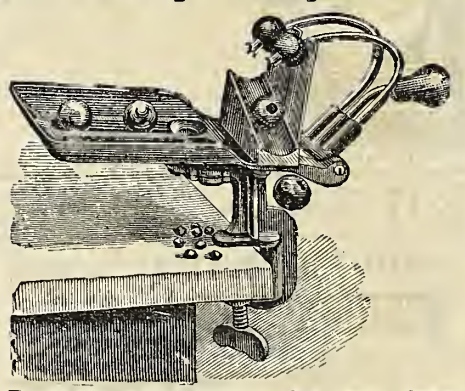
Pat. Oct. 31, '76 & Apr. 3, '77

## The Boss Sickle Grinder.

[TRADE-MARK PATENTED.]
Every Farmer should Have One.
Simplest, most durable and perfect Sickle Grinder in the World. A boy can run it. Is the best Grindstone in use for all purposes. For Sale by all dealers. Good Agents and Canvassers wanted.

**POWELL, STEVENS & DOUGLAS,**
Waukegan, Illinois.

## The Family Cherry-Stoner



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*FRUIT AND VEGETABLE*
**DRYER & BAKE OVEN**
**Over 11,000 in use.**
**The BEST in the Market.**
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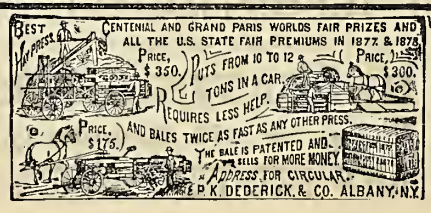

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**DEALERS IN**
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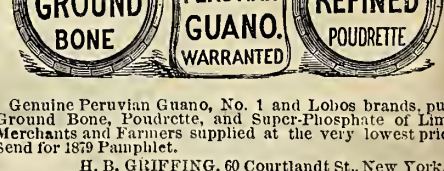


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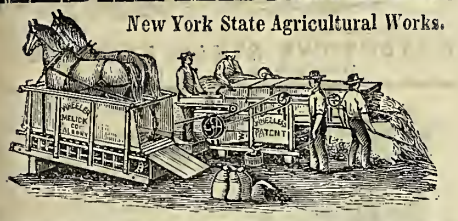

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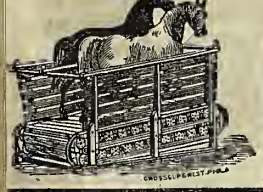

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WE FURNISH THE

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Complete, mounted on 4 wheel trucks, and the

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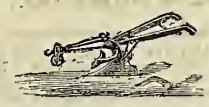

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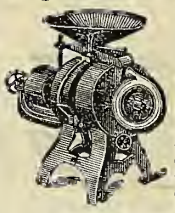

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The best *Vertical* and *Horizontal* French Burr Grinding Mills, Portable Flouring Mills, and Mill Machinery. They possess numerous original and valuable improvements. The best Mill ever made. Send for Illustrated Catalogue and be convinced.

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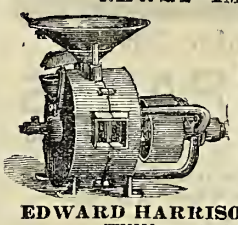

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Capacity of 12-inch Mill, 2 to 12 bus. per hour; capacity of Light 20-inch Mill, 6 to 40 bus. per hour.

Wholesome Bread, Fine Flour, High Speed, Quick Work, and Economical Milling Fully Established. For illustrated catalogue, describing the Harrison System, Address Estate of

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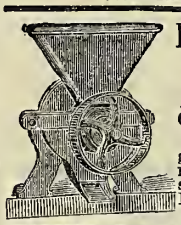

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**Over 20,000 in Use.**

Every machine is guaranteed to give satisfaction, or no pay. Price of mills, $12; shellers, $5. Send for descriptive circulars and terms to agents.

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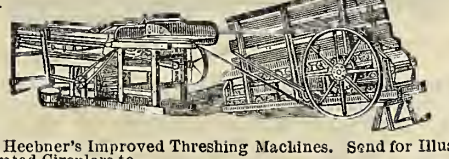

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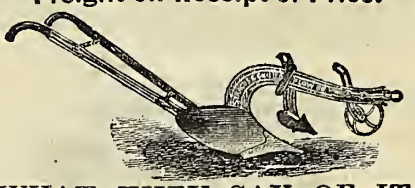
**PRICE FULL RIGGED $16.**

**Sample Plows Delivered Free of Freight on Receipt of Price.**



## WHAT THEY SAY OF IT:

CANFIELD, OHIO, September 10th, 1878.

GENTLEMEN:—I took two of the Syracuse Chilled Plows on trial, this fall, and find them all you recommend them to be. MARTIN NEFF.

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GENTS:—I have used the Syracuse Chilled Plow, and am fully satisfied that it does better work and in every respect surpasses any Plow that I have ever used.

Yours truly, JOHN R. HAYES.

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I recommend farmers to try one of your Plows before purchasing elsewhere. I am using one, and consider it the best Plow I ever used. D. P. HORTON.

PANAMA, N. Y., May, 1878.

I have bought and used one of your Plows, and I consider it in all respects the best Plow I have ever used.

LOREN B. SESSIONS.

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The Syracuse Chilled Plow is the best Plow to hold and run steady, in the market. I think of getting another soon, as I need another Plow, in preference to any other kind.

WM. BYERS.

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DEAR SIR:—I have used the Syracuse Chilled Plow, bought of you, and am satisfied it does better work, and in every way surpasses any Plow I ever used. WENDEL KROEHLE.

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Your Plow suits me. It cleans the best of any Plow I ever used. It is just the thing. W. H. CRANE.

HUDSON, OHIO, December 21st, 1878.

DEAR SIR:—I have used a Syracuse Chilled Plow, bought of you last summer, and am satisfied that it runs easier, cleans better, and does the best work of any Plow I have ever used. My men fully agree with me. JOHN MACK.

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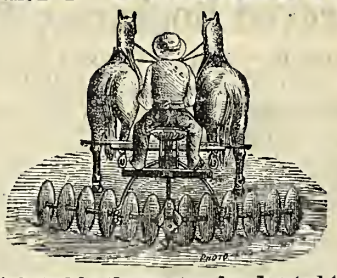
ADDRESS

**SYRACUSE CHILLED PLOW CO., SYRACUSE, N. Y.**

# La Dows Jointed Pulverizing & Smoothing DISC HARROW.

Light, Simple,



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**Being jointed in the center, is adapted to both smooth and uneven surfaces. Acknowledged the best of the kind, and will pulverize and cover seed better in one operation, than going over twice with others. Made with both Chilled Metal and Cast Steel Discs polished. Send for circular and price list. Manufactured by**

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*The best Grain-Seed and Fertilizing Drill in America,* with Pin or Spring Hoes and Grass Seed Sower, and "Victor" Double Huller Clover Machine, the *best in the world.* Send for descriptive circular and price-list.

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**ORIGINAL AND ONLY GENUINE**

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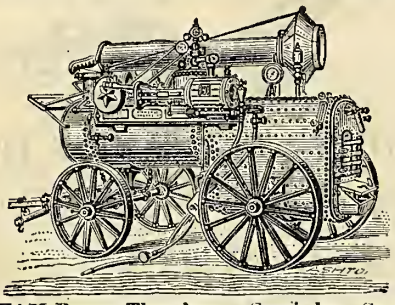
**THRESHING MACHINERY.**

**THE Matchless Grain-Saving, Time-Saving,** and Money-Saving Threshers of this day and generation. Beyond all rivalry for Rapid Work, Perfect Cleaning, and for saving Grain from Wastage.



**STEAM Power Threshers a Specialty. Special** sizes of Separators made expressly for Steam Power.

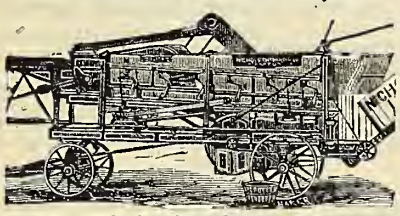
**OUR Unrivaled Steam Thresher Engines,** both Portable and Traction, with Valuable Improvements, far beyond any other make or kind.

**THE ENTIRE Threshing Expenses (and often** three to five times that amount) can be made by the Extra Grain SAVED by these Improved Machines.

**GRAIN Raisers will not submit to the enor-**mous wastage of Grain and the inferior work done by all other machines, when once posted on the difference.

**NOT Only Vastly Superior for Wheat, Oats,** Barley, Rye, and like Grains, but the ONLY Successful Thresher in Flax, Timothy, Millet, Clover, and like Seeds. Requires no "attachments" or "rebuilding" to change from Grain to Seeds.

**IN Thorough Workmanship, Elegant Finish,** Perfection of Parts, Completeness of Equipment, etc., our "VIBRATOR" Thresher Outfits are Incomparable.



**MARVELOUS for Simplicity of Parts, using** less than one-half the usual Belts and Gears. Makes Clean Work, with no Litterings or Scatterings.

**FOUR Sizes of Separators Made Ranging,** from Six to Twelve-Horse size, and two styles of Mounted Horse Powers to match.

**FOR Particulars, Call on our Dealers or** write to us for Illustrated Circular, which we mail free.

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## Improved Rockaway Fan.

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**Gold Medal at Md. Institute in 1878,**
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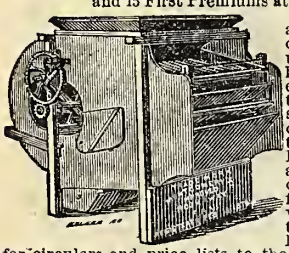

No good Farmer can afford to be without one of these Fans! This universally known Fan has been victorious in every contest, and has the approval of thousands of Farmers all over this country. It is the best and cheapest Fan made for the farmer and planter. It is the only Fan that will effectually take out of wheat the great Virginia trouble "Partridge Pea." Prices reduced. Send for circulars and price lists to the manufacturers.

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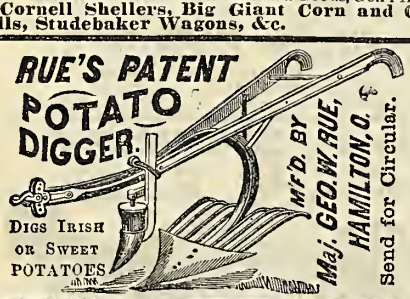


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This mill is constructed on scientific principles, and guaranteed to do good work in any kind of wind. It is also guaranteed to be well made of good material; to be perfectly self-regulating; to possess more power; to be more reliable in all kinds of winds, than any other mill made, and further than this, it is **Guaranteed NOT TO BLOW DOWN.**

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Perfectly self-regulating, and the only Wind-Mill that stands on the derrick in perfect balance, in gear and out of gear. It is a solid Wheel-Mill, and is warranted to be well made and to stand the most violent storms. Every farmer, stock-raiser, and dairyman should have one for pumping water for stock, grinding feed, etc.

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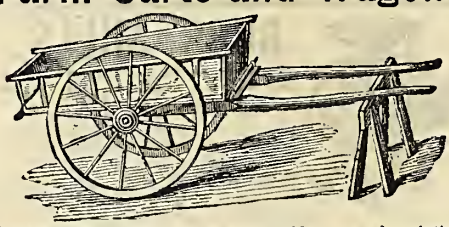

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FINE ENGLISH & AMERICAN BREECH-LOADERS,

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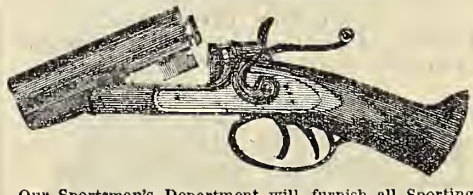

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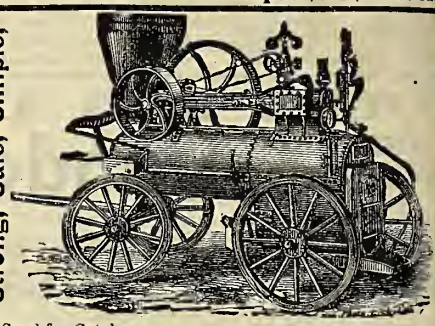

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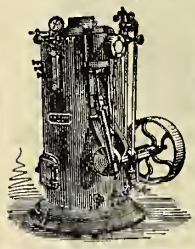

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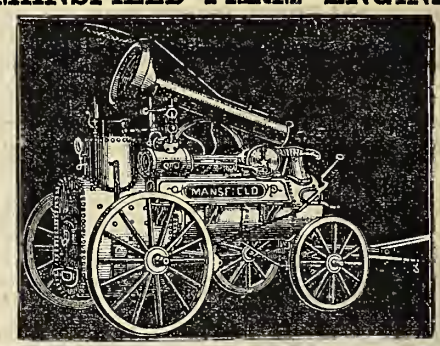


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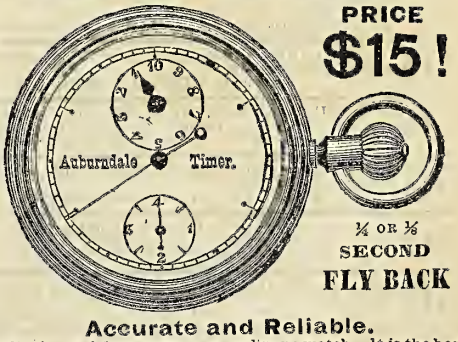


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(*From The New York Evening Express, April 11th*)

Every species of dog, from the little pet who is fondled in the boudoir or caressed in the parlor, to the stout mastiff who is feared by intruders and beloved by the household, finds a place within the covers of the book. Attractive chapters upon shooting, and upon the use of the dog as the sportsman's companion, are also included. The articles written on this side of the water are able and concise, and the compilation of the volumes should be satisfactory to those who resort to it for pleasant reading, or for information. Stonehenge is a friend to the dog, and so will be the readers of the book if an appreciation of the dog as man's best friend be not already assured.

(*From the Spirit of the Times, New York, April 5th.*)

The higher the degree of civilization the more highly is the dog cherished for its sagacity and affectionate disposition. A book, then, which has for its object to bring the dog into more prominent notice, and to encourage a refining and more kindly disposition on the part of its owners, must always serve a good purpose. This new work on dogs *will attract the notice of every friend of these animals*, and will undoubtedly tend to largely add to the present increasing favor with which they are regarded. The work is a handsome book of nearly 400 pages, profusely illustrated, with new engravings *made expressly for it* by the well known artist and sportsman, Charles Hinkle, Esq., and is *faultless in its typography* and general appearance. It is a reproduction in part of those standard works on the dog, "Stonehenge on the Dog, in Health and Disease," and "The Dogs of the British Islands," together with new and origiual matter by David W. Judd, Esq., and Mr. Henry Stewart, which makes the work more especially American in its aims, and renders it *more acceptable* to American readers, than would be a mere reproduction of Stonehenge's works with their peculiarly foreign tone and manner. The works of Stonehenge are very costly, and are thus beyond the reach of many willing American purchasers. This new work, however, costs but one-fifth as much as the former, and is thus brought *within the reach of every owner of a dog*, and *every person who owns a dog should* own *a copy* of *this book.* We cordially commend it to public notice.

(*From the New York Sportsman, April 5th.*)

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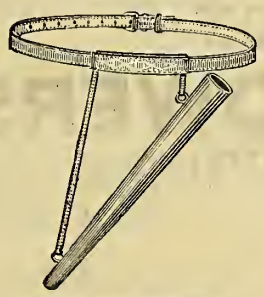

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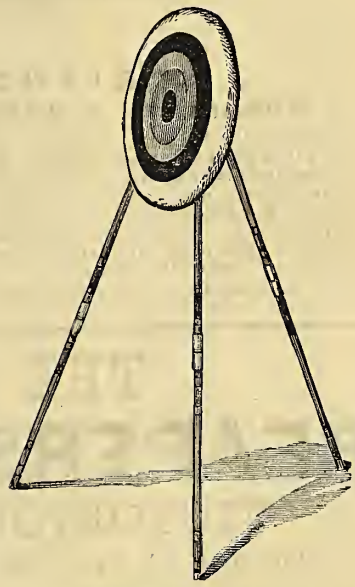

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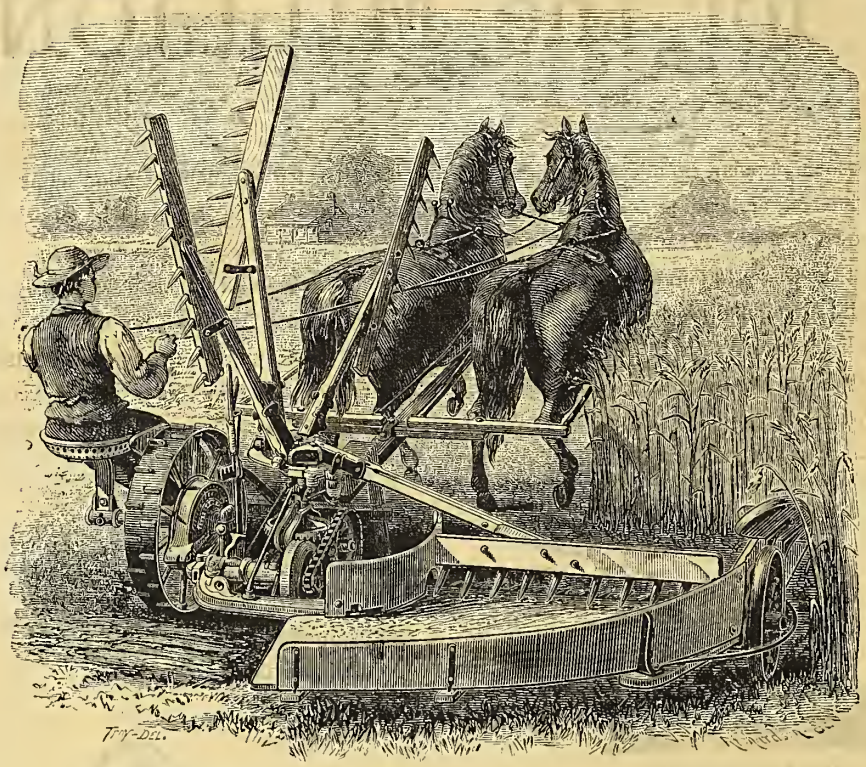

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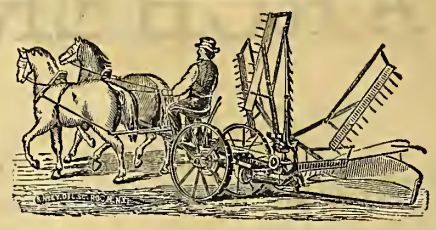

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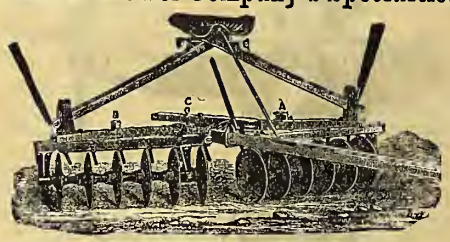

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FOR THE FARM, GARDEN & HOUSEHOLD.

VOL. XXXVIII. NUMBER 6.

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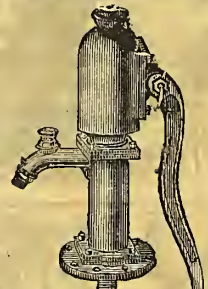

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VOLUME XXXVIII.—No. 6. NEW YORK, JUNE, 1879. NEW SERIES—No. 389.

A SHADED SHEEP PASTURE.— *Drawn and Engraved for the American Agriculturist.*

Much has been said and written in recent years about the preservation or the growth of trees. They have generally been looked upon as something to be cut down and destroyed—as useless, if not injurious, because taking the place of something that might grow with profit. But trees have their value as shade even in the pasture usually given up to grass. A few spreading trees render the field attractive to the beholder, or should do so, whether he be the owner or merely a passer by. The comfort of the animals resting and ruminating under the cool shade is too apparent to be disputed, and the flowing pail at night in the dairy, or the vigorous and playful flock, betoken the intrinsic value of the shade which has sheltered them from the heat of the mid-day sun. The agreeable scene pictured above could hardly be seen in an American landscape, unless it might be in the blue-grass regions of Kentucky, where one may occasionally find a picturesque grove of broad speading trees on the rolling meadows of that far-famed locality, under which flocks of choice sheep or herds of magnificent Shorthorns rest themselves or graze contentedly. The view above is by a European artist, and represents a flock of French Merino sheep under the care of a shepherd, in a finely shaded pasture. It recalls the history of those times when a small flock of thoroughbred Merinos represented a small fortune to the owner or the purchaser, and when a ram was considered worth several thousand dollars, and a ewe only a little less; and when the unfortunate owner of a flock fed with it by day and slept with it at night. It can scarcely be said that those were extravagant days, when we consider what has resulted from the popular appreciation of the merits of those valuable sheep from which the American Merino has descended, and which are represented in the above picture. Our American Merinos partake more of the character of the French than of the Spanish prototypes. The heavy, deep bodies, the wrinkled necks, the thickly wooled bellies and legs covered to the hoofs, mark the French rather than the Spanish type, and as the popular demand for longer wool than that of the extremely small sheep, and the extra gain in the way of mutton in the carcass of the larger, long-wool Merinos, secure greater profit, so the present improved American Merino would be well represented by this foreign picture. And it is certainly desirable that the comfortable scene above may have the useful effect of encouraging a taste for shaded pastures, in place of the too frequent bare, unsheltered fields in which sheep pant and suffer from intolerable heat under the shady side of a rail fence, forced to content themselves with that make-believe shelter from the sun's rays, which prevent feeding and the possibility of comfortable rest. If shade in the pastures is desirable in the cooler climate of Europe, how much more is it needed here, where the sun has so much greater force. Aside from the question of humanity, which should of itself be sufficient to induce us to provide for the comfort of our animals, that of profit is concerned. It can not be expected that animals will thrive under conditions which their owner would find almost intolerable. Let the animals have shade.


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## Calendar for June, 1879.

| Day of Month. | Day of Week. | *Boston, N. England, N. York State, Michigan, Wisconsin, Iowa, and Oregon.* Sun rises. | Sun sets. | Mo'n sets. | *N. Y. City, Ct., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois.* Sun rises. | Sun sets. | Mo'n sets. | *Washington, Maryland, Virginia, Kentucky, Missouri, and California.* Sun rises. | Sun sets. | Mo'n sets. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | H. M | H. M | H. M. | H. M | H. M | H. M. | H. M | H. M | H. M. |
| 1 | S | 4 25 | 7 30 | 1 50 | 4 31 | 7 25 | 1 54 | 4 36 | 7 19 | 1 53 |
| 2 | M | 4 25 | 7 31 | 2 24 | 4 30 | 7 25 | 2 29 | 4 36 | 7 20 | 2 34 |
| 3 | T | 4 24 | 7 31 | rises | 4 30 | 7 26 | rises | 4 35 | 7 20 | rises |
| 4 | W | 4 24 | 7 32 | 8 13 | 4 30 | 7 27 | 8 6 | 4 35 | 7 21 | 8 1 |
| 5 | T | 4 24 | 7 33 | 9 11 | 4 29 | 7 27 | 9 5 | 4 35 | 7 22 | 8 59 |
| 6 | F | 4 23 | 7 34 | 9 58 | 4 29 | 7 28 | 9 53 | 4 35 | 7 22 | 9 46 |
| 7 | S | 4 23 | 7 34 | 10 34 | 4 29 | 7 29 | 10 30 | 4 34 | 7 23 | 10 26 |
| 8 | S | 4 23 | 7 35 | 11 2 | 4 28 | 7 29 | 11 0 | 4 34 | 7 23 | 10 57 |
| 9 | M | 4 23 | 7 35 | 11 27 | 4 28 | 7 3 | 11 26 | 4 34 | 7 24 | 11 24 |
| 10 | T | 4 23 | 7 36 | 11 49 | 4 28 | 7 30 | 11 48 | 4 34 | 7 25 | 11 48 |
| 11 | W | 4 22 | 7 37 | morn | 4 28 | 7 31 | morn | 4 34 | 7 25 | morn |
| 12 | T | 4 22 | 7 37 | 0 9 | 4 28 | 7 31 | 0 10 | 4 34 | 7 25 | 0 11 |
| 13 | F | 4 22 | 7 38 | 0 30 | 4 28 | 7 31 | 0 32 | 4 34 | 7 26 | 0 34 |
| 14 | S | 4 22 | 7 38 | 0 52 | 4 23 | 7 32 | 0 55 | 4 34 | 7 26 | 0 58 |
| 15 | S | 4 22 | 7 38 | 1 17 | 4 28 | 7 33 | 1 21 | 4 34 | 7 27 | 1 25 |
| 16 | M | 4 22 | 7 39 | 1 45 | 4 28 | 7 33 | 1 50 | 4 34 | 7 27 | 1 56 |
| 17 | T | 4 22 | 7 39 | 2 19 | 4 28 | 7 33 | 2 26 | 4 34 | 7 27 | 2 32 |
| 18 | W | 4 32 | 7 39 | 2 59 | 4 28 | 7 34 | 3 6 | 4 34 | 7 28 | 3 15 |
| 19 | T | 4 22 | 7 39 | sets | 4 28 | 7 34 | sets | 4 34 | 7 28 | sets |
| 20 | F | 4 23 | 7 40 | 8 37 | 4 28 | 7 34 | 8 31 | 4 34 | 7 28 | 8 26 |
| 21 | S | 4 23 | 7 40 | 9 13 | 4 29 | 7 35 | 9 9 | 4 34 | 7 29 | 9 4 |
| 22 | S | 4 23 | 7 40 | 9 45 | 4 29 | 7 35 | 9 41 | 4 35 | 7 29 | 9 38 |
| 23 | M | 4 23 | 7 40 | 10 12 | 4 29 | 7 35 | 10 10 | 4 35 | 7 29 | 10 8 |
| 24 | T | 4 23 | 7 41 | 10 36 | 4 29 | 7 35 | 10 35 | 4 35 | 7 29 | 10 35 |
| 25 | W | 4 23 | 7 41 | 11 0 | 4 30 | 7 35 | 11 0 | 4 36 | 7 29 | 11 1 |
| 26 | T | 4 24 | 7 41 | 11 24 | 4 30 | 7 35 | 11 25 | 4 36 | 7 29 | 11 29 |
| 27 | F | 4 24 | 7 41 | 11 50 | 4 31 | 7 35 | 11 53 | 4 36 | 7 29 | 11 56 |
| 28 | S | 4 24 | 7 41 | morn | 4 31 | 7 35 | morn | 4 37 | 7 29 | morn |
| 29 | S | 4 25 | 7 41 | 1 20 | 4 31 | 7 35 | 0 25 | 4 37 | 7 29 | 0 30 |
| 30 | M | 4 25 | 7 41 | 0 1 | 4 32 | 7 35 | 1 7 | 4 38 | 7 29 | 1 9 |

PHASES OF THE MOON.

| MOON. | D. | BOSTON. H. M. | N. YORK. H. M. | WASH'N. H. M. | CHA'STON H. M. | CHICAGO. H. M. |
|---|---|---|---|---|---|---|
| Full M'n | 4 | 8 52 mo. | 8 40 mo. | 8 28 mo | 8 16 mo. | 7 46 mo. |
| 3d Quart. | 11 | 0 12 ev. | 12 0 n'n | 11 48 mo | 11 36 mo. | 11 6 mo. |
| New M'n | 19 | 3 35 ev. | 3 23 ev. | 3 11 ev. | 2 59 ev. | 2 29 ev. |
| 1st Quart | 27 | 1 12 mo. | 1 0 mo. | 0 48 mo | 0 36 mo. | 0 6 mo. |


# AMERICAN AGRICULTURIST.

NEW YORK, JUNE, 1879.


## Hints for the Work of the Month.

[*The Hints and Suggestions in these columns are never copied from previous years, but are freshly prepared for every month, from the latest experience and observations, by practical men in each department.*]

*Orchard Grass.*—In a late season like the present, early grass for pasture or for cutting, is unusually valuable. The great difference between grasses in earliness, is strikingly seen when one has a field of Orchard grass adjoining one of Timothy. Orchard grass is too much neglected, and those who have never grown it, may try it with great advantage. That it is the earliest to start in the spring, comes into blossom with Red Clover, and both are ready for cutting in the best condition at the same time, are by no means all its valuable points.

*Hay.*—Recent investigations threaten to upset some popular notions. It has long been supposed that early cut hay is more valuable than that cut later. If the judgment of the cows were a test, there would be no question about it. They will leave the riper hay, and even refuse to eat it at all, if they can procure that which has been cut earlier. In the writer's dairy, the milk falls off more than 10 per cent when the young hay is changed for that cut two weeks later. This is sufficient to support the general opinion in spite of chemical analyses, which go to show that ripe hay is heavier, more bulky, and contains more nutritious substance, than that cut earlier.—Perhaps the operations of the chemist can extract more nutriment from ripe hay than can the cow's stomach; but as young hay feeds more profitably, it seems best to cut early.

*Mowing Machines* are now indispensable. The scythe may be used for cutting about fence corners when the wasteful zigzag rail fence is used; but so far as other uses go, it may be hung up out of the way. In choosing a mower, the chief points to consider are, lightness of draft, strength and simplicity of construction. With these, one has economy in use, durability, convenience of handling, and ease in keeping in order—points of the utmost importance. There is one other point worth noting, which is safety in case of a run away, or when mowing a rough field, and there is danger that the driver may be thrown upon the cutting bar. The cutting bar should always be well in advance of the driver, but never directly ahead of him.

*Curing Hay* in the cock is preferable to sun drying. The sweating and fermentation improve, and prevent heating in the mow or stack. The writer prefers to put up hay, after the dew is off, in moderately large cocks,—four feet wide and high,—after it has lain spread in the sun for one full day. It may thus stay safely for a week, if necessary, and a hay cap will protect it from a 24 hours' rain. The day it is drawn in, a man should start early and throw open the cocks, to get a final airing for two or three hours before it is taken up.

*A Horse Fork* should be in every barn. In the hurry of haying, the cost of a horse hay fork may easily be saved in one week, by rapid unloading.

*Corn.*—Late plantings of corn may be made up to the middle of the month. Some early sorts, and some new varieties which claim to be extra early, may be tried as an experiment. It will pay very well to make late plantings up to July for fodder, planting in drills 3 feet apart, with about 12 grains to the foot in the drill. The large kinds of

*Sweet Corn* are the best for fodder. Triumph, Marblehead Mammoth, and Stowell's Evergreen, are suitable for this purpose. The common opinion, that sweet corn is better for fodder than field corn, is well founded; but there is some difficulty in curing the stalks, which is easily surmounted however, and which will be noted in season.

*Frequent Cultivation* is essential to successful corn growing. The cultivator should be kept going this month through the corn and the root crops, about once a week. It matters not that there are no weeds in sight, it is not alone to kill weeds, that we cultivate and hoe, but to loosen the soil, and by that means, to stimulate the growth.

*Summer Fertilizing.*—The experience of the past few years has often shown it to be useful to give a light dressing of fertilizer to the corn, just before the last cultivation. This helps the earing, and renders many ears productive that would otherwise be abortive. The fertilizer should be worked in with the cultivator. A mixture of poultry manure, ashes, and plaster, will be useful; or the prepared artificial corn fertilizer, may be used in place of this.

*Roots.*—Early Blood beets, and Sugar beets, may be sown early this month. Mangels will now require clean culture, and vigorous thinning. Rutabagas may be sown from the first to the 25th of this month, upon land that has not been prepared in time for earlier crops.

*Fodder Crops.*—The rye ground cleared by this time, may be immediately prepared and planted with fodder corn or oats, the latter to be followed with late turnips as the oats are cut for feeding; or Hungarian grass may follow the rye, and be cut off in time for sowing rye again next fall. A good plot of cabbages will be found useful for fall and early winter feeding of cows, and if plants have been provided for, they may be set out on the rye ground, or some other piece of rich moist soil.

*Working Horses.*—An ample bedding of fresh straw will do much to induce a tired horse to lie down and rest. Clean grooming, and an occasional washing will also greatly encourage restfulness and improve the appetite and health. Over-feeding is not judicious, and will not restore flesh lost by hard work and want of comfortable rest. To prevent galls, the harness should be washed and kept soft with castor-oil. If vermin attack the harness, a little powdered aloes rubbed in with the oil, will keep them away from the leather.

*Cows and the Dairy.*—Now that winter dairying has come into vogue, it does not pay to pack butter for sale in competition with fresh creamery pails in winter. A change has come over this business, and it is no longer advisable, unless under exceptional conditions, to keep butter stored away for sale. The most profitable butter now is that sold fresh in small tubs or pails. This change should be noted and provided for as soon as may be. It also affects the management of cows, and these are now brought in fresh at any season of the year, so as to keep a constant supply of fresh milk. With the "perfected butter colorings," as they are called, June grass color has paled in comparison, and is now of less consequence. "June" butter,

or butter equal to that, so-called, can now be made, with fresh cows, at almost any time of the year.

*Calves.*—A run in a good piece of grass will greatly help the calves. The more they are pushed, without over-doing it, during the first year's growth, the better the mature animal will be.

*Sheep and Lambs.*—Dry ewes may be fattened as quickly as possible, and marketed. Lambs to be made ready for sale, require extra food along with the grass. Those not marketed this month, may be fed until the fall, and sold then, when they will pay better. Flies will soon be troublesome, and sheep and lambs should be closely tagged, and smeared with tar in places where filth may gather. The flock should be closely watched, and counted every night when brought in from pasture. The careful shepherd will count his flock every time they are visited or moved. Anything wrong will then be noticed.

*Pigs* for fall killing, may be forced from the start. A run at grass, a little milk, and regular, steady feeding on bran and meal slops, will help to make a large growth, which is afterwards quickly filled up with fat. The low prices now prevailing, must be offset by making more pork than formerly out of the same feed.

*Rubbing Posts.*—A few rubbing posts set up in pastures, will save injury to the fences. Cattle will use these conveniences very often, if provided for them, and it is worth all the trouble, to witness the enjoyment of the animals in the use of them.

*Salt Boxes* have frequently been described in the *American Agriculturist;* as they are easily made, very useful, and the supply of salt is healthful, a few of these boxes attached to the fences of the pasture, and kept replenished with salt, will be trouble well bestowed.

*Hoes and Tools.*—Dull tools are labor wasters. It is cheaper to use up a whole grindstone in one season, than to work with dull hoes, spades, and other tools. See that dulled tools are ground sharp every evening; the men may do this, while they are talking and chatting over their pipes, and the tools will be ready for work in the morning.

*Poultry.*—Cats, rats, and hawks, destroy a good many chickens. Provide safe coops which can be closed at night, and which are not to be opened, until the dew is off the grass in the morning.

*Labor-saving Implements.*—Work cannot now be done profitably without labor-saving implements. Corn-planters are almost universally used in the West, and eastern farmers can much better compete with their western brethren by availing themselves of the same facilities. Among the most useful at the present time is the "Albany Corn Planter," which, with one man and a horse does the work of five or six men, and at the same time drops fertilizers in the row, and can be turned into a horse-hoe. The lateness of the present season makes almost imperative the use of such machines, which pay their cost in one week's work.

## Orchard and Nursery.

June brings the harvest of the strawberries and the early crops of the garden. It is at this time that the weeds, if neglected, will establish themselves to the partial or entire destruction of the crop. The only way to be master is to keep ahead of the weeds. Fight them when they are weak. "Pussley" and parsnips can not thrive together. Clean culture is the only culture that pays. The use of the hoe and rake in June decides, in great measure, what the season's work will bring.

*Labels and Record.*—Do not trust to the label attached in the nursery as the sole record of the variety. We have often advised that every one have a plan or plot of his orchard. It is well to make a permanent record on heavy pasteboard. This can be copied into the memorandum book carried in the pocket for reference in the orchard. Perhaps the simplest method is to rule the plan in squares, the squares at the side representing the rows, and those at the top designating the trees in each row. As shown in the accompanying diagram, it is easy to indicate any tree, for example, the third tree in the fifth row may be found at once. To simplify this, the varieties are designated by letters or by numbers, letters being on some accounts preferable. The key to the varieties should be attached to the plan, as shown below. Such a plan allows one to find the place of a tree at a glance. In an orchard where the varieties are few, and the rows consist of one variety only, its arrangement is easily remembered; but where, as is often the case, there are but few of a variety, a record is of great convenience.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| 1 | A | A | A | A | C | A | A | A |
| 2 | B | B | B | C | C | C | D | D |
| 3 | | | | | | | | |
| 4 | | | | | | | | |
| 5 | | | | | | | | |

A—Early Harvest. D—Baldwin.
B—Porter. E—R. I. Greening.
C—Summer Queen. F—Rox. Russet.

The diagram indicates that the first row was set with Early Harvest, but that the fifth tree in the row having died, its place was filled by C, which, the key, shows to be the Summer Queen.

*Pruning.*—The cessation of the pressing work of earlier weeks allows the orchardist to give his trees the needed pruning. All dead and useless branches should of course be cut away, and those which crowd one another. Cover all large wounds with shellac varnish, or with paint.

*Grafts* should be looked after. It may be that the shoots from the stock are growing too vigorously at the expense of the graft; remove such twigs. See that the grafts have plenty of room and are not interfered with by surrounding branches.

*Thinning.*—The sooner this is done after the fruit is set, the better. Two-thirds or one-half of the quantity set may often be removed with advantage.

*Mulching.*—Apply around young trees almost any substance that will cover the soil and shield it from the drying rays of the sun, and from the evaporation of moisture.

*Baskets.*—Provide the baskets and crates that may be needed, and let them be distinctly marked.

*Curculio.*—As soon as the fruit begins to set, the trees should be visited early in the morning, when the curculio is sluggish. A large cloth should be so arranged, that it can be spread, or better, held by four persons, while another gives the tree two or three sharp jars. The insects which fall upon the sheet, should be swept into the fire.

*The Borers* of the peach and apple tree should be looked to. No surface remedy is of use with these destructive fellows, after they are once *in the tree.* The use of the knife and probe is the effectual means of reaching and destroying them. They can be detected by their "ear marks" of dust, and depression in the bark. It is not necessary to girdle the tree in the operation, in many cases very little use of the knife is required. A few hours spent in this manner, will often save many valuable trees.

*The Tent Caterpillar* taken at just the right time, and that time is in this month, can be destroyed with comparative ease. As soon as the nests are large enough to be seen, they should be "wiped out of existence." On a cool morning before the greedy "worms" are out for their breakfast, and while the dew is glistening on the nests, is the most favorable time to take them. The lower nests may be reached by the hands, and the upper ones by a pole with a swab of cloth or a brush. A wash of strong lye is an effectual bath for them, but it is best to see that they are burned or crushed.

## The Fruit Garden.

*The Grape Vines.*—One-year-old vines, set this spring, should not be allowed to grow more than one shoot. Remove all others, reserving of course the strongest. If older vines were set, these should not be allowed to bear, as it is necessary for them to become thoroughly established and prepare for fruiting. Keep all shoots tied up to stakes or trellises. On old vines, the fruit will be greatly improved by thinning after the clusters are set, leaving only two bunches to a shoot.

*Strawberries.*—If the beds are not already mulched, apply it before the berries get heavy enough to fall over and become soiled. Keep newly set beds clear of weeds, and pull up large weeds that come up through the mulch on old beds. The picking and packing for market requires great care and good judgment, for it is the *appearance* of the fruit in the market which sells it. Avoid putting in over-ripe berries as one such will be crushed and spoil the whole basket. Use well ventilated crates; of a size to be easily handled, and plainly marked.

*Blackberries* and *Raspberries.*—See that the fruiting canes are properly tied up to the stakes or trellis. The young shoots now growing will form canes for next year's fruiting, and should be attended to. Cut away all except 3 to 5 to each stool, and tie these to the support as soon as old enough. The young canes should be pinched off at 4 feet for raspberries and 6 feet for blackberries. Cut away the old canes after fruiting is past.

*Currants and Gooseberries.*—Mulch these early in the season; litter from the barn-yard, or chips from the wood-pile may be used. This will prolong the season. If the eggs of the "currant worm," which are deposited on the underside of the lower leaves, were found and destroyed, there would be an end to the trouble at once, but this is not easy to do, and the fight begins, or should begin, as soon as the ragged appearance of the leaves show that the worms are at work. White Hellebore is the remedy, and while it may be dusted upon the bushes, it is better to mix it with water, a tablespoonful to a pailful of water, and applied with a syringe or pump. In mixing the Hellebore, place the powder in a bowl or other dish and pour on hot water gradually, stirring until all is thoroughly moistened, adding a pint or more of hot water; pour this into the pail and fill up with cold water. The application should be repeated every few days so long as worms appear. In our experience, we find that three applications usually finishes them.

## Kitchen and Market Garden.

The hoe, rake, or other weeding implement must be frequently run along the rows of growing vegetables. The weeds must be killed. We hope that the time will come when every farmer will know the comfort that a well-planted and well-kept kitchen garden may bring him. Too many are yet content with salt pork and old beans, when they might have an abundance of spinach, green peas, radishes, lettuce, onions, tomatoes, etc. As the early crops come off, they should be replaced by others, so that the garden may show no fallow or unoccupied ground. Provide for succession crops of peas, radishes, sweet corn, etc.

*Asparagus* must be allowed time to grow its foliage, and prepare the nourishment for next year's crop. From not understanding this, many exhaust their beds by cutting too late. The old rule to stop when green peas come is a good one. When cutting ceases, let the tops grow; their shade will keep down the small weeds, and the few large ones that may appear are to be pulled by hand.

*Beets.*—Those who would enjoy beets in their perfection should keep up a succession of the Egyptian, to use while they are still young. Thinnings of these and of the late crop make an excellent substitute for spinach.

*Beans.*—If not already done, put in the Limas; if a cold rain has injured the first lot, replant. These and other pole-beans need a little attention at first to make them take to the pole. Put in the Bush sorts for succession; the "Refugee" is regarded as best late variety and the best for pickling.

*Cabbages.*—The early crop should be kept growing by frequent hoeings. Plants of the late sorts in seed-beds should not be too crowded, and the cabbage worm kept off; picking will answer here.

*Carrots* for the late crop may still be sown, using plenty of seed, as the young plants are weak, and can not break through the soil unless sown thickly. Weed as early as the rows can be seen.

*Celery.*—Weed the seed-bed, and if the plants get large before the time for setting out, cut off their tops; this will make them stocky.

*Corn.*—Plant at intervals of a week all through

the month. Hoe often, and, if need be, give a top-dressing of guano or other quick-acting fertilizer.

*Cucumbers.*—Dust the young plants freely with a mixture of ashes and plaster or air-slaked lime, to keep away insects. Unless seed is to be saved, cut away all that are large enough to use, whether wanted or not, to prolong the bearing. In sowing for pickles the last of this month or the first of next, it is as well to sow in well-manured rows, as in hills, putting in 12 to 20 seeds to the foot, to allow enough for the bugs. When well established, thin out the vines to a foot apart, and let them spread on each side of the row.

*Egg Plant.*—Set out in very rich ground. The potato-bugs will find them the same day, and must be fought from the start; at first, hand-picking may answer, but when the plants get large, the only safety is in the application of Paris green.

*Melons* need the same care as cucumbers. They may still be sown with the chance of ripening before frost. The same may be said of Watermelons. Use a plenty of seed, especially with the latter.

*Onions.*—Those from seed will need weeding early. A top-dressing of wood-ashes helps the growth wonderfully. A dressing of salt is thought to prevent a rust that sometimes appears. Keep those from sets clean. Where onions are marketed, they usually bring a better price when sent to market in bunches, half grown, than when ripe.

*Peas* rarely do well after hot weather comes on, but some of the dwarf sorts may be used to fill vacant places, to take their chances.

*Peppers.*—Set out in a warm, well-manured spot.

*Spinach* of a common kind will soon run to seed if sown now, but the New Zealand spinach, a very different plant, makes an excellent substitute. Use an abundance of seed, as it is slow in coming. It spreads widely. Transplant to fill vacancies.

*Squashes* are subject to several enemies; at least three insects devour the leaves, a borer attacks the stems, and a caterpillar eats the young fruit. Hand picking will do much, but if the spotted Galeruca appears, we shall try Paris green, as we know no other remedy. For the borer it is advised to slightly bury the first few joints of the vine.

*Tomatoes* in a private garden should always have a trellis or support of some kind, and should be tied to it before the plants fall over. If the plants once get out of shape it is difficult to manage them. The simplest frame of poles that will keep them from the ground, will answer.

*Sweet Potatoes.*—Set as directed last month. In most Northern localities this is quite early enough.

*Odds and Ends.*—Fill vacant spots with sweet herbs from seed-bed....Use the hoe....Cut off flower stalks as often as they appear upon the rhubarb....Use the rake....Take care of the hot-bed and other sashes....Use both hoe and rake....Nasturtium, Okra and Martynia for pickles, may still be sown....Use all the weeding implements often.

## Flower Garden and Lawn.

To have a fine velvety turf, the mower must be used frequently, usually as often as once a week. Use the sickle in corners near trees and shrubs, and other places not reached by the mower. It is not well to have a greater surface in turf than can be properly cared for. A little well kept is better than the same labor expended on twice the extent.

*The Paths* should be kept free from weeds, well rolled, and the edgings cut and in good trim. The appearance of the grounds depend much upon nicely kept margins to the paths.

*Bedding Plants* should be out now. If ornamental beds or ribbon designs are attempted, they will need attention from the first, in order to keep the lines distinct, and the designs well marked.

*Annuals* must be either transplanted or the seeds sown at once.

*Neatness.*—Everything about the premises should show good keeping, which comprises attention and a vast number of minute details. A well kept grass plot and a few shrubs is vastly more pleasing than beds of the most showy flowers kept in a slovenly manner, or not kept at all.

## Greenhouse and Window Plants.

We usually have settled weather at this time, and those plants that are to go out to decorate the lawn or veranda, or to be set in the borders, should be removed. The greenhouse can be made attractive by the better arrangement of the remaining plants. Shading must be provided, insects watched and kept in check, and watering will demand more than usual attention as the days get warmer.

## Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, from our record kept daily during the year, show at a glance the transactions *for the month ending May 12th*, 1879, and for the corresponding period last year:

**1.** TRANSACTIONS AT THE NEW YORK MARKETS.

| Receipts. | Flour. | Wheat. | Corn. | Rye. | Barley. | Oats |
|---|---|---|---|---|---|---|
| 26 d's *this* m'th.. | 391,000 | 3,769,000 | 2,441,000 | 297,000 | 351,000 | 938,000 |
| 26 d's *last* m'th.. | 413,000 | 3,457,000 | 2,916,000 | 314,000 | 207,000 | 811,000 |

| Sales. | Flour. | Wheat. | Corn. | Rye. | Barley. | Oats. |
|---|---|---|---|---|---|---|
| 26 d's *this* m'th | 441,000 | 8,504,000* | 5,763,000* | 474,000 | 382,000 | 1,307,000 |
| 26 d's *last* m'th | 395,000 | 8,431,000* | 5,687,000* | 439,000 | 291,000 | 1,213,000 |

* Including sales for forward delivery.

**2.** *Comparison with same period at this time last year.*

| Receipts. | Flour. | Wheat. | Corn. | Rye. | Barley. | Oats. |
|---|---|---|---|---|---|---|
| 26 days 1879.. | 391,000 | 3,769,000 | 2,441,000 | 397,000 | 351,000 | 938,000 |
| 26 days 1878.. | 223,000 | 3,417,000 | 2,109,000 | 396,000 | 405,000 | 581,000 |

| Sales. | Flour. | Wheat. | Corn. | Rye. | Barley. | Oats. |
|---|---|---|---|---|---|---|
| 26 days 1879.. | 441,000 | 8,504,000 | 5,763,000 | 474,000 | 382,000 | 1,307,000 |
| 26 days 1878.. | 407,000 | 4,376,000 | 2,534,000 | 423,000 | 371,000 | 835,000 |

**3.** *Stock of grain in store at New York.*

| | Wheat. bush. | Corn. bush. | Rye. bush. | Barley. bush. | Oats. bush. | Malt. bush |
|---|---|---|---|---|---|---|
| May 4, 1879.. | 1,935,402 | 1,036,039 | 372,867 | 232,646 | 451,492 | 81,336 |
| May 7, 1878.. | 748,196 | 263,020 | 75,229 | 207,576 | 570,298 | 258,327 |

**4.** *Exports from New York, Jan. 1, to May 9.*

| | Flour. bbls. | Wheat. bush. | Corn. bush. | Rye. bush. | Barley. bush. | Oats. bush. | Peas. bush. |
|---|---|---|---|---|---|---|---|
| 1879.. | 1,056,171 | 14,460,284 | 9,937,264 | 1,154,809 | 86,290 | 176,388 | 150,155 |
| 1878.. | 904,902 | 14,932,098 | 6,690,781 | 1,340,395 | 1,355,407 | 223,827 | 212,106 |
| 1877.. | 436,097 | 3,124,698 | 7,062,226 | 439,605 | 123,083 | 60,141 | 136,874 |
| 1876.. | 728,579 | 7,614,910 | 4,336,520 | 102,604 | —— | 75,290 | 319,539 |

CURRENT WHOLESALE PRICES.

| | Apr. 12. | May 12. |
|---|---|---|
| Flour—Super to Extra State | $3 25 @ 4 25 | $3 40 @ 4 35 |
| " Super to Extra South'n. | 3 25 @ 6 50 | 3 40 @ 6 75 |
| " Extra Genesee | 4 25 @ 5 75 | 4 40 @ 6 00 |
| " Superfine Western | 3 25 @ 3 60 | 3 40 @ 3 90 |
| " Extra Western | 3 60 @ 8 75 | 3 65 @ 9 00 |
| " " Minnesota | 3 65 @ 8 50 | 3 65 @ 8 75 |
| Rye Flour, Superfine | 2 75 @ 3 25 | 2 85 @ 3 40 |
| Corn-Meal | 2 00 @ 2 40 | 2 10 @ 2 40 |
| Oat Meal, ℔ bbl | 3 00 @ 6 00 | 2 75 @ 5 75 |
| Wheat—All kinds of White. | .95 @ 1 15 | 96 @ 1 17½ |
| " Red and Amber | 95 @ 1 15 | 95 @ 1 17½ |
| " Spring | 75 @ 1 05 | 77 @ 1 06 |
| Corn—Yellow | 44¾ @ 52½ | 45 @ 55 |
| " White | 45 @ 52 | 45 @ 52 |
| " Mixed | 43 @ 46½ | 44 @ 47 |
| Oats | 30 @ 42 | 30 @ 42 |
| Rye | 57 @ 63 | 58 @ 64 |
| Barley | 50 @ 1 07½ | 40 @ 95 |
| Hay—Bale, ℔ 100 ℔s | 30 @ 75 | 30 @ 80 |
| Straw, ℔ 100 ℔s | 25 @ 55 | 30 @ 55 |
| Cotton—Middlings, ℔ ℔ | 11⅜ @ 11½ | 12¾ @ 12⅞ |
| Hops—Crop of 1878, ℔ ℔ | 5 @ 13 | 5 @ 13 |
| " " 1877, ℔ ℔ | 2 @ 4 | 2 @ 4 |
| " olds, ℔ ℔ | 1 @ 2 | 1 @ 2 |
| Feathers—Live Geese, ℔ ℔ | 30 @ 45 | 35 @ 46 |
| Seed—Clover, West. & St. ℔ ℔ | 6 @ 7 | 6 @ 7 |
| " Timothy, ℔ bushel | 1 30 @ 1 50 | 1 20 @ 1 40 |
| " Flax, ℔ bushel | 1 35 @ 1 40 | — @ — |
| Tobacco, Kentucky, &c., ℔ ℔ | 2½ @ 12½ | 2½ @ 11½ |
| " Seed Leaf, ℔ ℔ | 7 @ 50 | 5 @ 40 |
| Wool—Domestic Fleece, ℔ ℔ | 18 @ 37 | 18 @ 37 |
| " Domestic, pulled, ℔ ℔ | 16 @ 35 | 16 @ 34 |
| " California | 11 @ 25 | 9 @ 22 |
| Tallow, ℔ ℔ | 6½ @ 6⅝ | 6¼ @ 6⅜ |
| Oil-Cake—℔ ton | 27 00 @ — | 27 50 @ 27 75 |
| Pork—Mess, ℔ barrel | 9 37½ @ 10 62½ | 9 00 @ 10 00 |
| " Extra Prime, ℔ barrel | — @ — | 9 50 @ 10 25 |
| Beef—Extra mess | 10 50 @ 11 50 | 10 50 @ 11 50 |
| Lard, in trcs. & bbls, ℔ 100 ℔ | 6 30 @ 6 87½ | 6 15 @ 6 67½ |
| Butter—State, ℔ ℔ | 9 @ 20 | 7 @ 19 |
| " Western, poor to f'cy, ℔ | 6 @ 28 | 5 @ 19 |
| Cheese | 3 @ 8¾ | 2 @ 8 |
| Eggs—Fresh, ℔ dozen | 11½ @ 13½ | 10½ @ 12 |
| Poultry—Fowls, ℔ ℔ | 10 @ 15 | 9 @ 14 |
| " Chickens, ℔ ℔ | 11 @ 16 | 20 @ 35 |
| " " ℔ pair | 50 @ 1 00 | 75 @ 1 40 |
| " Roosters, ℔ ℔ | 7 @ 10 | 5 @ 7 |
| Turkeys—℔ ℔ | 15 @ 20 | 12 @ 18 |
| Geese, ℔ pair | 75 @ 2 00 | 75 @ 2 00 |
| " ℔ ℔ | 5 @ 14 | — @ — |
| Ducks, ℔ pair | 50 @ 90 | 50 @ 90 |
| " ℔ lb | 12 @ 21 | — @ — |
| Capons, ℔ ℔ | — @ — | 20 @ 25 |
| Ducks, Wild, ℔ pair | 20 @ 1 00 | — @ — |
| Snipe, per doz | 1 25 @ 1 50 | 50 @ 2 00 |
| Pigeons, ℔ doz | 1 25 @ 4 50 | 30 @ 3 25 |
| Apples, ℔ barrel | 1 00 @ 2 50 | 1 00 @ 2 50 |
| Oranges, ℔ bbl | 6 00 @ 10 00 | — @ — |
| " ℔ box | — @ — | — @ — |
| Strawberries, ℔ quart | 25 @ 35 | 25 @ 75 |
| Beans—℔ bushel | 1 15 @ 2 70 | 1 15 @ 3 00 |
| Peas—Canada, in bond, ℔ bu | — @ 78 | 75 @ 78 |
| " new So., ℔ crate | 1 25 @ 4 00 | 50 @ 1 00 |
| String Beans, new, ℔ bush. | 4 00 @ 4 50 | 75 @ 1 25 |
| Potatoes, ℔ bbl | 2 00 @ 3 37½ | 2 00 @ 3 50 |
| " new | 9 00 @ 11 00 | 5 00 @ 7 00 |
| " Sweet, ℔ bbl | 3 00 @ 4 00 | 2 75 @ 3 50 |
| Turnips ℔ bbl | 75 @ 1 25 | 1 25 @ 1 75 |
| Tomatoes, new, ℔ small box | 1 00 @ 1 25 | 75 @ 1 00 |
| Radishes, new So. ℔ 100 bun | 1 00 @ 1 50 | 75 @ 1 00 |
| Broom-corn | 2 @ 5¼ | 2 @ 6½ |
| Beets, new, ℔ crate | 1 50 @ 2 00 | — @ — |
| Asparagus, new, ℔ doz. bun. | 2 75 @ 3 50 | 1 50 @ 3 25 |
| Cabbages—℔ 100 | 4 00 @ 7 00 | 2 00 @ 13 00 |
| Spinach, So., ℔ bbl | 2 00 @ 3 00 | 75 @ 1 00 |
| Onions—℔ bbl | 4 00 @ 5 00 | 2 00 @ 3 00 |
| " ℔ crate | — @ — | 1 25 @ 1 50 |
| Squash, ℔ bbl | — @ — | 2 00 @ 4 00 |
| Cucumbers, new, ℔ crate | — @ — | 1 00 @ 3 00 |

An unusually active business has been transacted in the Breadstuff line, especially toward the close, and in Wheat and Corn, largely on speculative account, at generally higher prices, though leaving off weaker. Weather and crop reports have been less satisfactory, and have tended to stimulate purchases. Cable advices have been more favorable to the export interest. With the resumption of inland navigation, holders show at its close less confidence in a buoyant market. The bulk of the available supply of Wheat here and at Chicago and Milwaukee is held under speculative control. Important dealings have been noted in Rye, mainly for shipment to the Continent, and values have been quoted stronger....Hog products have shown depression and irregularity on a lighter movement, even on speculative account. Beef and Beef Hams have been quoted steady, but quiet. Butter and Cheese declined sharply, but closed steady at the modified figures, with more inquiry noted ...Cotton has been again advanced materially, and has been very brisk in the way of options, though quiet for early delivery....Wool has been recently more sought after, and has shown more firmness, with an improved outlook for Woollen Goods....Hops have been in moderate demand, chiefly for home use, within the quoted range....Seeds have been comparatively dull at current quotations....A fair call has been noted for Hay and Straw and Tobacco, at about former rates....Petroleum and Naval Stores have been inactive, and quoted easier in price....Ocean freights have been unsettled, on a moderately active inquiry for accommodation, closing more steadily, with the main call for room for Grain, Flour, Petroleum, and Provisions.

### Prices of Feed.

| | |
|---|---|
| Bran, per ton | $16.00@$18.00 |
| Middlings, per ton | 19.00@ 20.00 |
| Ground Feed, per ton | 21.00@ 23.00 |
| Linseed-oil-cake, western, per ton | 35.00@ 40.00 |
| Cotton-seed-cake, per ton | 25.00@ — |
| Chandler's Scraps, per ℔ | 2@ 3 |

### Prices of Fertilizers.

| | |
|---|---|
| Nitrate of Potash (95 per cent.), per lb. | 9 @9½c. |
| Sulphate of Potash (potash 44 per cent) per lb.... | 3 @3¼c. |
| do. do. (potash 27½ per cent) per lb.. | 1½@1¾c. |
| German Potash Salts (potash 12 to 15 p. c. p. ton. | $15.00@18.00 |
| Muriate of Potash (potash 50 per cent), per lb.... | 2 @2¼c. |
| Nitrate of Soda, per lb. | 3⅝c.@4¼c |
| Sulphate of Ammonia (25 per cent.), per lb..... | 4½c.@4¾c. |
| Dried Blood (ammonia 13 per cent) per ton...... | $40.00@45.00 |
| No. 1. Peruv. Guano 10 p. ct. ammonia, standard, ℔ ton.. | $56.50 |
| do. do. Lobos, do. do. do.... | 47.50 |
| do. do. guaranteed, ℔ ton, cargo K | 56.00 |
| do do. rectified, per ton, 9.00 p. c.. | 65.00 |
| do. do. do. do. 3.40 p. c. | 51.00 |
| Soluble Pacific Guano, ℔ ton | 45.00 |
| Excelsior Fertilizer Works, Fine Ground Raw Bone,.. | .55.00 |
| Mapes' Complete Manure (clay soils) per 1,000 lbs....... | .25.00 |
| do. do. do. (light soils) per 1,000 lbs....... | .25.00 |
| do. do. do. "A" Brand, (for turnips) per 1,000 lbs. | 20.00 |
| do. Grass and Grain Top-dressing, ℔ 1,000 ℔s | .25.00 |
| do. Fruit and Vine Manure, do. | ......17.50 |
| do. Bone, strictly pure, meal ......per ton | .42.00 |
| do. do. do. medium...... do. | 36.00 |
| do. do. do. dissolved..... do. | 42.00 |
| do. Cabbage and Cauliflower Manure per 1,000 lbs.. | .46.00 |
| do. Corn do. ..........per 1,000 lbs.. | ..23.75 |
| Stockbridge Corn Manure, per acre | 20.00 |
| " Potato do do | 10.00 |
| " Tobacco do do | 50.00 |
| " Rye do do | 10.00 |
| " Wheat do do | 15.00 |
| Bowker's Hill and Drill Fertilizer, per ton | 45.00 |
| Baugh's Raw Bone Phosphate, per ton | 33.00 |
| Baugh's Manure for Tobacco and Grain, per ton.. | 45.00 |
| Walton Whann & Co.'s Raw Bone Phosphate | 40.00 |
| Gypsum, Nova Scotia, ground, per ton | 8.00 |

## New York Live-Stock Markets.

RECEIPTS.

| Week ending | Beeves. | Cows. | Calves. | Sheep. | Swine. |
|---|---|---|---|---|---|
| Apr. 21 | 10,625 | 86 | 4,880 | 18,013 | 35,275 |
| Apr. 28 | 8,960 | 46 | 4,438 | 23,005 | 29,532 |
| May 4 | 11,040 | 71 | 4,544 | 23,998 | 33,998 |
| May 11 | 9,339 | 54 | 5,208 | 25,661 | 39,122 |
| *Total for* 4 *Weeks*.. | 39,904 | 257 | 18,670 | 90,680 | 137,927 |
| do. *for prev.* 5 *Weeks* | 44,250 | 326 | 11,515 | 104,516 | 143,645 |

| | Beeves. | Cows. | Calves. | Sheep. | Swine. |
|---|---|---|---|---|---|
| *Average per Week* | 9,976 | 64 | 4,667 | 22,670 | 34,482 |
| do. do. *last Month* | 8,850 | 65 | 2,303 | 20,903 | 28,729 |
| do. do. *prev's Month* | 9,656 | 90 | 1,602 | 23,199 | 33,944 |

The prices for the past four weeks were as follows:

| Week ending | Range. | Larger Sales. | Aver. |
|---|---|---|---|
| Apr. 21 | 7½@11 c. | 9¼@10¼c. | 9⅝c. |
| Apr. 28 | 8¾@11 c. | 9½@10¼c. | 9⅝c. |
| May 4 | 8¼@11 c. | 9¼@10½c. | 9⅞c. |
| May 11 | 9 @11 c. | 9½@10¼c. | 10 c. |

**Beeves.**—A notable improvement has taken place in the market; ½c. ℔ ℔ advance was gained in the early part of the month, and this has been still further improved upon. The shipment of dressed beef for export has been resumed, and several hundred head have been sent out weekly; the large reduction in receipts the last week also helped materially to stiffen the market. At the close the feeling was good, and the market strong and active. The lowest prices were 9c. ℔ ℔ for 55 ℔ cattle, and 10¾c. was paid for good natives to dress 57 ℔s. ℔ cwt. Fancy selected steers brought 11c. ℔ ℔; fair to prime beeves ranged from 9½@10¼c. ℔ ℔. Dressed beef sells slowly at 7½@8½c. for city slaughter, and 8c. for Western.

**Cows** have been in demand, and higher, closing at $35 to $55 per head; the latter being an extreme price.

**Sheep and Lambs.**—The supply being short, business has been active at full prices for good sheep; unshorn selling at the close at 5¾@6¾c. ℔ ℔ live weight, and shorn at 4¾@5½c. ℔ ℔. Lambs have declined, and Virginia and Kentucky sold at 7½@9c. ℔ ℔, alive; State and near-by lambs brought at the close 7½@10¼c. ℔ ℔.

**Calves.**—The market has ruled dull for veals: country dressed have arrived in bad order, and are unsalable; city dressed sell better, closing at 8c. ℔ ℔. Good country dressed brought 6@7c. ℔ ℔. Choice live veals sold

for 4@5¼c. ℔ lb live weight for good, and 5¼c. for choice. Buttermilk calves sold heavily at 3@3½c. ℔ lb live weight.

**Hogs.**—Live hogs are quoted nominally at 3¾@4c. ℔ lb., none being on sale at the close, the market having ruled dull all through the month. City dressed have ranged from 4⅝@5½c. ℔ lb.

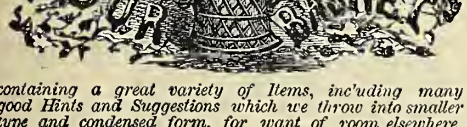
**The Horse Market.**—An active demand exists for good horses and prices are looking up, but not sufficiently as yet to change quotations. Farmers have made their purchases for spring work and the supply has been ample to meet the demand. Sales have been made for ordinary work horses from $100 to $160 per head, and good teams have been purchased at $225 to $300. The export trade is active; 101 horses and several mules have been sent abroad the past week; 50 of the horses went to France; the mules and a few horses to the West Indies. The export trade now looks promising for the season.

# One Month More.

**This is the Last Month** for securing the valuable PREMIUM ARTICLES, offered in our general list for 1879. All lists must be sent in this month, as the offers will positively cease at 6 *o'clock P. M.*, **June 30,** except as noted below.

**But** there is *abundant time* THIS MONTH to fill up uncompleted lists, and to start and complete *new* premium clubs before July 1. Many have done so every year. A very little time and attention will secure *free of cost* one or more desirable and useful articles. Let all who have not a copy of the list at hand, send us a postal card at once with name and Post Office address upon it, and say on it, "Send Illustrated Premium List."

**To Distant Subscribers.**—To put all upon equal footing, as thousands of our readers live at distant points, in all parts of the world, we will allow the time of closing the Premium List to be so extended for such distant readers, that every one, every where, shall have 20 days *after receiving this* paper, in which to gather and forward names for premiums. Those living almost anywhere in the United States or British North American Provinces, will receive this number about June 1st, and thus have a whole month for making up Premium Clubs.




*containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of room elsewhere.*

**Clubs** can at any time be increased by remitting for each addition, the price paid by the original members; or a small club may be made a larger one at reduced rates, thus: One having sent 6 subscribers and $7, may afterwards send 4 names more and $3, making 10 subscribers for $10.00; and so for the various other club rates.

**Bound Copies** of volume 37, and of every previous volume back to Vol. XVI. (1857), neatly bound, with gilt backs, Index, etc., are supplied at $2 each (or $2.30 if to be sent by mail). See Publishers' Notes, 2d cover page.

**Read the Advertising Columns.**—Letters are daily received by the editors, asking where pigs, fowls, seeds, fertilizers, machinery, etc., can be procured. We consider all the information of this kind that is given in the advertising pages sufficient, if those needing anything will only look there; and can not find room to repeat what is already plainly told elsewhere. Every page of the *American Agriculturist*, including the covers, is interesting reading, and should all be carefully examined every month. In addition to looking after what one may want, the reading of what others have to say, in offering their wares, etc., starts up some new idea in the mind of the reader.—When writing to any advertiser, always tell him in what paper his advertisement was seen.

**The German Edition.**—All the principal articles and engravings that appear in the *American Agriculturist* are reproduced in the German edition. Besides these, there is a special department, edited by an eminent German cultivator. Our friends can do us a good service by calling the attention of their German neighbors and friends to the fact that they can have the paper in their own language, and those who employ Germans will find this Journal a most useful and acceptable present.

**The American Pomological Society,** at the invitation of the Western New York Horticultural Society, will hold its 17th session at Rochester, N. Y., September 17th to 20th, next. As Rochester is one of the centers of nursery and fruit-growing interests, a large attendance is anticipated. It is hoped that the President, Hon. Marshall P. Wilder will have sufficiently recovered from the effects of his accident to allow him to be present. The life membership fee is $20; that for biennial membership is $4. Those desirous of becoming members can remit the amount to the Treasurer, Thomas P. James, Cambridge, Mass. Each member is entitled to a volume of Transactions, a publication of great value.

**"Wrigglers" in a Cistern.**—"J. W.," East Bolton, P. Q., Canada. Wrigglers are the larvæ of that musical bird, the mosquito. So long as there is any crack, cranny, or crevice anywhere about the covering, the inlet, or outlet, large enough to admit a mosquito, wrigglers will be bred there. The remedy suggests itself.

**The New Haven Horticultural Society** will hold its summer exhibition at the Old State House, June 19th and 20th, at New Haven, Conn. The schedule of premiums is full and well considered, and does not omit prizes for the young folks. The President is C. L. Mitchell, and Robert Veitch, Jr., is Secretary.

**Horses Gnawing Feed-Troughs.**—"Subscriber." The habit of gnawing their mangers is one of which horses can hardly be cured. They may be prevented by making the troughs of hard wood, or covering them with sheet-iron or zinc. They do not gnaw wood to eat the fragments, but to relieve some disagreeable sensation in the teeth, possibly the insufficient wearing down of them in consequence of feeding upon soft food. When horses are fed upon corn in the ear they are much less addicted to this habit.

**Nurserymen, Florists, Seedsmen,** and those engaged in kindred occupations have formed an "American Association," which will hold its fourth annual meeting at Cleveland, Ohio, this month (June) 18th to 20th. The Association is for the improvement of the trade in its various aspects, and its list of members includes names that are a guarantee that its objects are praiseworthy. The programme as far as given shows that a number of the leading nurserymen will take part in the proceedings, and the subjects announced show that the discussions will not be entirely of a commercial character. The invitation is extended to "all who feel any interest in the general welfare of the Trade." J. J. Harrison, Painesville, O., is President, and D. Wilmot Scott, Galena, Ill., Secretary.

**"The Diseases of Live Stock,** and their most efficient Remedies," is the title of a work by Lloyd V. Tellor, M.D., and published by the H. C. Watts Co., Philadelphia. While to thoroughly test the value of a work of this kind one should learn by experience how far it meets his wants as an aid in treating his own animals, a very fair opinion can be formed by a careful inspection of its contents. We are favorably impressed by the author's preface, in which he tells us in a few lines that he makes no claim to being a veteriuary surgeon, but is a country physician, who, having been frequently consulted about the diseases of domestic animals, turned his attention to veteriuary medicine. Of course, with a regular medical education, he was abundantly prepared with the aid of the best works on the subject, to apply his medical knowledge in this direction. In the present work, he gives descriptions of the diseases of animals in popular language, and such directions for their treatment and for simple surgical operations as the owner may safely follow. We are not informed of the price of the work, but presume it is given in the advertising pages.

**Value of Light Brahmas.**—"G. H. W.," Jacksonville, Ill. The Light Brahmas are valuable chiefly for their large size, early growth, good flavored and tender flesh while young and until two years old. Besides these, their habit of laying in winter is an important consideration. They are very domestic, are easily handled, hardy, and do not fly over a three-foot fence.

**Sale of a Percheron.**—The Percheron (imported) stallion "Louis Phillipe" was recently sold by his owner, J. J. Parker, of West Chester, Pa., to the Hampton Institute, Va. This horse received a prize at the New York State Fair at Elmira last fall.

**The New Work on Dogs.**—"The Dogs of Great Britain, America, and Other Countries," a consolidation of two works by "Stonehenge," announced last month, met not only with a cordial welcome from the press, but what is quite as gratifying, from the dog fanciers and readers of such works. The rapid and unexpectedly large sale of this book indicates that the interest in dogs is an intelligent one, and that those who love these animals have a desire to be informed as to their history, and to learn whatever relates to their well-being.

**"Archery"** is the brief and modest title of a modest little hand-book prepared for the instruction and guidance of those who would learn the use of the bow, or form Archery Clubs, and know the regulations governing shooting. It describes the various implements used in archery, illustrated by numerous engravings, and gives other useful and interesting information. Published by the Orange Judd Company. Price, by mail, 15 cents.

**Fisk & Hatch—"4 Per Cents."**—We were startled, 14 years ago, at the announcement that our friends, Messrs. Fisk & Hatch, had made a round subscription for over **$5,000,000,** of a single issue of U. S. Bonds. These figures seemed enormous then. On questioning them about it, they said they knew the people would want them at a premium, and the event proved that they knew what they were about. We were, therefore, less surprised the other day when the morning papers announced that this same Firm had sent to Washington a single subscription for **$150,000,000** of the 4 per cent Bonds, for themselves and others, including $25,000,000 on their own account! It did strike us that this was rather rash. Where would they find purchasers to take off their hands **$150,000,000** in Bonds paying only 4 per cent a year interest? We did not see then so well as they, that hard as the times have been, our people have been growing richer all the time—because they have been learning the important lesson of *keeping expenses within income.* The truth is, if 40 millions of our people, by savings, by reducing debts, by adding to their implements, or stock, or the productive value of their farms, etc., are on the average only $25 better off at the end of a year, it is equivalent to adding, and really does add, $1,000,000,000—*one thousand million* dollars—to the actual wealth of the country, and we have no doubt that this has been done in each of the past two years, if not longer. How far our friends, Fisk & Hatch, judged rightly as to the latent wealth of the country, and to the demand for even a 4 per cent Government Loan, is told in their business announcement on another page. It seems surprising that a 4 per cent bond should already command a premium; but the English Government 3 per cent bonds are selling nearly at par. Our 4 per cents would pay as much annual interest if they cost 18 per cent premium. Should not the credit of this country equal that of Great Britain?

**Quinby's New Bee-Keeping.**—This work, announced some months ago, is now ready. Mr. Quinby was collecting materials for this revision when his long and useful career as our leading Apiarian was terminated by his sudden death. It is fortunate that his son-in-law, Mr. L. C. Root, was thoroughly prepared through a long business association and many years of joint experiment and investigation with him, to take up the work, and give not only Mr. Quinby's later views, but the results of his own experience. Being the latest work on the Apiary, it is also the fullest. In no industry have more important improvements been made within the past few years than in bee-culture, and these are embodied in this new edition. While the work is adapted to the wants of the amateur bee-keeper, those who would take up bee-keeping for profit will find here the methods of one who has for years devoted himself to it as a business. Though Mr. Root modestly accepts the position of reviser, he is really joint author, the work being almost entirely re-written, and the abundant and excellent illustrations are mainly new, and made expressly for this edition. Sent post-paid by the Orange Judd Company for $1.50.

**Planting Fodder-Corn.**—"W. C.," Spring Valley, N. J. Corn for the main crop or for fodder may be quickly planted with the Albany Corn Planter. This implement drops the seed 3 inches to 3 feet apart, as may be required, in the row, covers the seed and rolls it, and deposits fertilizer if desired. It is drawn by one horse, and plants 8 or 10 acres in a day. By attaching plows, etc., to it, it is changed to an effective cultivator.

**Remedy for Splenic Fever.**—Dr. T. E. Wilcox, N. Y., of the U. S. Army, writes as follows in regard to splenic fever or apoplexy of cattle, generally known as Texas fever: "Last season, while I was stationed at Camp Supply, Indian Territory, the disease broke out in the herd of Lee & Reynolds, army beef contractors, and was quickly arrested by feeding the sugar-beet to the cattle exposed, as well as to those not too far gone to eat. This would support Prof. Gamgee's theory that the disease is caused by eating coarse, dry weeds." The undoubted original cause of the disease is malnutrition, by which the blood is disordered and the digestive organs rendered incapable of exercising their functions. Laxative food, such as roots of any kind, are a healthful change of diet, and tend to restore the tone of the system, which has been deranged by indigestible and innutritious food. Such laxative food will act as a preventive.

**A Compound Microscope in Every Family.**—The magnificent instrument described last month (pages 172 and 173) was contrived and prepared specially for the readers of the *American Agriculturist*, and we would be glad if every reader of this Journal, young and old, could enjoy the pleasure and benefit afforded by such an instrument. It is certainly a marvel of cheapness; no microscope of such power, efficiency, and good workmanship was ever before made or offered, in this country or in any other, for anything like so small a sum. This result has been obtained by the application of machinery to the construction of most of its separate parts, and by making them on a tenfold larger scale than was ever before attempted. The interest on the cost of one is only 50 to 70 cents a year—a trifling sum as compared with its value to the younger members of the family especially. A chance for *them* is given on page 232, to obtain one as a premium. We began this item, however, to call attention to what is said of it by several high authorities, as given on page 240.

**An Important Land Decision.**—The Supreme Court of the United States has just given a very important decision affecting the right to and value of several millions of acres of land in Kansas, Nebraska, and the region beyond. The closing language of Section 3, Act of 1862, chartering the Pacific Railroads, after granting lands, provided that all lands not "sold or *disposed* of" within three years after the completion of the roads, should be subject to pre-emption at $1.25 per acre. The application of a squatter to pre-empt came up last year through the various channels to the Secretary of the Interior, who held, construing this Section—that the lands were subject to pre-emption—the three years having expired—and that the land grant mortgage claimed by the Union Pacific Company to have been such, was not a disposal of the lands, though it was made before the three years expired. In the test case brought by the Company it was held that the mortgage *was* a disposal, and the lands, therefore, *were not* subject to pre-emption. The Supreme Court decides that the land grant was a final disposition of the lands, and therefore, definitely settles the question, removing any doubts thrown upon validity of title by the Schurz decision, and leaves pre-emptionists in the attitude of squatters. These pre-emptionists began to occupy the lands after the Schurz decision was given last year. The decision applies also to the Kansas Pacific Railroad, whose lands, like those of the Union Pacific, have been kept in abeyance for nearly a year by the decision of the Secretary of the Interior. In brief, the railroads can give a full and perfect title to the lands sold by them. Whatever the decision might have been, it is fortunate that the Supreme Court has rendered it so quickly, inasmuch as the present condition of uncertainty is brought to an end.

**A Fine Collection of Orchids** to be broken up. It is with sadness that we see a private library, which the owner has collected, book by book, through many years, offered for sale, and it is with something of the same feeling that we learn of the breaking up and dispersion of a collection of choice plants, which must be, as in case of the library, of more value to the owner than it can possibly be to a stranger. We regret to learn that the celebrated collection of Orchids, which Mr. Joseph Howland has been making these many years at "Tioronda," Fishkill-on-the-Hudson, N. Y., is to be scattered. Orchid growers can secure from this collection at private sale, such specimens as are rarely offered anywhere.

**Tobacco Wash for Sheep.**—"M. H. C.," Clarksville, Tenn. Tobacco dip for sheep is made by steeping one pound of coarse tobacco, or twice as much tobacco stems in 5 gallons of hot water. It may be applied at a heat of 110 degrees. Buchan's Carbolic Sheep Dip is less trouble to use and is more effective than tobacco water.

**Haying Tools and Their Uses.**—Not long ago "Haying Tools" comprised scythe, rake and pitchfork. The introduction of the mower made it necessary that all subsequent steps in the care of the hay crop be greatly facilitated, and we now have, besides rapid raking, the loading, unloading, and mowing away done by machinery, which introduces as great a saving of labor over the old work with pitchforks, as the mowing machine did over the scythe. A barn must now be built with a view to the use of the hay-fork and its carriers, or it is unsuited to the present style of farming. We are led to these remarks by a large and instructive poster issued by the U. S. Wind Engine and Pump Co., Batavia, Ill. This company, besides their widely known and extensively used wind machinery, are also engaged in the manufacture of the "Noyes Haying Tools," which consist of a grapple fork and carrier of the most approved styles. The poster referred to is of special interest, as it gives the details of the proper framing of a barn in which a hay carrier is to be used, and full instructions for putting up such apparatus, with the cost of building, etc. This also gives full details for making a field stacking frame, and many other points that can not fail to be of interest to every farmer, whether he uses these special implements or not. This sheet is sent free to all applicants by the U. S. Wind Engine and Pump Co., which has already won an excellent reputation as makers of the farm appliances, from which the company takes its name.

**American Jute.**—In an article last month (page 185), on the East Indian Jute and its culture, we mentioned the "American Jute," which was the subject of speculation several years ago, and that this had been revived. It now seems that there is a very different plant from the one there described, that is attracting attention under the name "American Jute." The "Bureau of Statistics of Labor and Improvement," of the State of New Jersey, are encouraging experiments with this *other* "American Jute," so called. We have not space for an extended account of this plant; this we hope to give another month. We can only say that it appears to be deserving of attention, and we advise those of our New Jersey readers who would know more about it to write, though rather late, to Sam'l C. Brown, Esq., Secretary of the above named Bureau, at Trenton, for circulars.

**More Imposition Upon Farmers.**—Parties are selling in New England, a "Champion" Mower-Knife Grinder, thus conveying the impression that they are in some way connected with the makers of the well known "Champion Reaper and Mower," and thereby gaining the confidence of the farmers. It should be generally known that the makers of the "Champion" have nothing to do with these pedlers, nor do they endorse their grinder in any manner. It is moreover stated that these grinder sellers are up to the dodge of getting signatures to orders, which afterwards turn out to be signatures to *notes*. Farmers, look out! Do not let the assumption of a reputable name induce you to sign *any paper whatever* for strangers—no matter what the pretence.

**Pigs with Weak Backs.**—"M. O. L.," Shelburne Falls, Mass. The weakness or paralysis in the loins of pigs, results from several causes. Hereditary constitutional disease; indigestion; nervous disorder; rheumatism; inflammation of the kidneys or parasitic worms in them; or, disease of the spinal cord; each one may produce it. It is usually relieved by applying a counter irritant to the skin, such as Mustard-paste or spirits of Turpentine well rubbed in over the loins. The food should be of the most easily digested and nourishing kind, and a mild purgative, such as two ounces of Linseed-oil or Castor-oil is frequently useful.

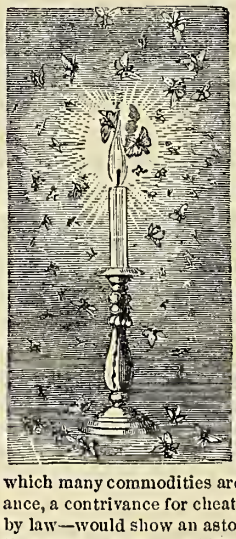
**Erysipelas in a Colt.**—"C. M. C.," Bradford Co., Pa. The symptoms of erysipelas in the head of a horse are swelling of the glands and throat at first, then the whole head swells and the tongue is forced out of the mouth; saliva is discharged from the glands; the breathing is difficult from the swelling of the throat, and the distress causes sweating and trembling of the body. The disease is accompanied by fever arising from a diseased condition of the blood caused by continued disordered indigestion, imperfect ventilation, filthy water, impure food, or failure of the excretory organs. It is rarely cured by any treatment.

**Buchan's Sheep Dip.**—"W. B. W." This may be regarded as a standard article, as it has been before the public for many years, and fully sustains its early reputation as an efficient and perfectly safe preparation for the treatment of scab and other parasitic troubles of sheep. It will be seen, by reference to our advertising columns, that the present agents are Messrs. Kidder & Laird of N. Y.

**Common-Sense Chairs.**—Common-sense, is said to be a very uncommon commodity, but Mr. Sinclair, whose advertisement appears regularly in our columns, has applied it to chair-making. He calls his wares "Common-Sense Chairs," and one has only to use them, as we have done for years, in-doors and on the veranda, to be convinced that the name is most appropriate. The old style of chair, such as were made when farmers had to build their own, of hickory and other splits, is here improved and modernized. The chairs are good enough to use in the parlor, and not too good to take out-of-doors, and they are far more "restful" and common-sensical than any of the so-called "rustic" seats that are often used (never by the same person twice), on verandas and piazzas. A very comfortable and useful chair will be found in any of the many patterns of the "Common-Sense."

**Gardner's Grappling Pitching Apparatus.**—Grappling forks are now meeting with general favor, and the apparatus made by E. V. R. Gardner & Co., appears to be among the best. It was the hottest of the hot days of last July, when we went to see it work, and when it took up a "mouthful," we were in doubt which was the part to be taken and which to be left on the load, so big a grip had it. Its carrying arrangement and the ease of tripping seemed to be perfect. The judgment of a looker-on in a close barn on a sweltering July day would be worth little, but the opinion of the farmer who used it was worth much. He was as enthusiastic over it as a boy could be with a new toy, and his only regret seemed to be that that there was no more hay to get in on that day, that he could enjoy the case and rapidity with which the fork took up the hay, put it just where it was wanted, and dropped it with a slight jerk of the tripping rope. The circular sent out by the makers, gives instructions for making a stacking frame, by which the rapid unloading of the fork can be made useful in placing the hay in stacks or ricks.

## Sundry Humbugs.



Large frauds probably do less harm to the community, in the aggregate, than small ones. The number of those who have dollars to invest is vastly smaller than those who have dimes, and, as a general thing, the larger the sum the more the caution exercised in investing it. When one is defrauded out of several dollars the case becomes known, while we seldom hear of the small losses. In a large city like New York, the small retail trade through which the poorer classes are supplied, is honey-combed with fraud. A study of the tricks in measuring and weighing—the frauds played in the "small measure," by which many commodities are sold, and by the spring balance, a contrivance for cheating that should be prohibited by law—would show an astonishing amount of rascality; they present a topic which we may discuss at another time. These minor frauds are like diseases, some so general that they may be regarded as epidemic, while others only appearing now and then, may be called sporadic. The small frauds are not practised upon the poorer classes alone, but are perpetrated openly upon Broadway and other thoroughfares. We described last year the humbug with the

"ALLIGATOR PLANT" FROM FLORIDA,

which was very successful that spring and the one before, but we have not seen it offered this season, probably through fear of the police, who last year had orders to suppress the traffic, after we informed the Mayor of the city of the fraud.. The small branches and young twigs of the common Sweet-gum tree or Bilsted (*Liquidambar*) are curiously winged with broad corky protuberances. The tree is quite common in the vicinity of New York, but as the majority of people go about the world without seeing what it contains, it was an easy matter for the street-venders to pass off these twigs, from the neighboring swamps, as Alligator Plants from Florida, which "needed only to be kept in water for a few weeks when they would produce most beautiful flowers." Hundreds if not thousands of truncheons of this tree, a foot or two long, were sold last spring at 25c. each. Of course no flowers ever came....This spring men appeared on the streets with baskets containing what a placard said were

"MEXICAN CINNAMON BEANS,

to perfume drawers; warranted to retain their flavor." The "beans" were of the size and shape of a large Lima bean, reddish brown, and with a decided odor of the Tonqua-bean or Snuff-bean. These Mexicans sold readily, being *scent* beans, at a cent apiece. Knowing that the odor did not belong to a bean of that shape and appearance, but that it must have been imparted to it artificially, we procured some of them for examination. As they had been most likely wetted with a tincture of Tonqua-bean, we dropped two or three beans into a small bottle of diluted alcohol to remove the tincture, and put them aside to soak. In a day or two after we looked to see how they were getting on, but

THE BEANS WERE NOT THERE!

There was the bottle, the diluted alcohol, a brownish sediment at the bottom, but no beans! This led to breaking open one of those that had not been put to soak. It was a bean of sugar paste, with a covering of chocolate! No *bean* at all. This incident shows how a preconceived notion will lead one astray. There is a red bean about the size and shape of this brought from Florida, and we

supposed that some one having a lot of these on hand had artificially perfumed them to make them sell. This notion prevented our seeing that the bean was not a real one, even though the imitation was most "life-like." We suppose that the chaps got hold of a lot of damaged confectionery and perfumed it. At all events, the "sell" was most complete....Those who have taken an interest in him will be glad to know that

JONES HAS (POSSIBLY) FOUND HIS COUSIN.

Newer readers may not know about Jones and his search for his cousin—as it was last year that we published the pathetic story. In brief, thousands of people have received letters from Jones, informing them that he had a cousin of the same name as theirs, not heard of since the war was over. If the recipient of the letter is his cousin, he can help Jones—and just as well if he isn't. Jones is agent for a lottery, wants cousin to act as agent for sale of tickets; sends cousin a ticket "good in any one of the drawings." If cousin will act as agent, "I," says Jones, "will manage it so that you will draw a prize."—Cousin is to show prize and act as stool pigeon to induce people to buy tickets, which we may feel very sure Jones will not "so arrange it" that *they* shall draw prizes. Jones has kept this up persistently for months, and we doubt not has found persons dishonest enough to help him in his schemes. Sometimes Jones writes to the wrong customer. One of his letters went to a well known citizen of Oneida Co., N. Y., who

WROTE JONES AS FOLLOWS.

"Yours at hand. I enclose a likeness as near as I am able to sketch it. When I was a young man, me and my cousin (by same name as yours) looked like twins. I wonder if we continue to look alike? Please accept my likeness in exchange for yours. I have a brother practising dentistry who some years ago peeled the skin from off my wisdom teeth. It was a great success.

Your Probable Cousin, M. J. N."

JONES' COUSINS PORTRAIT.

We reproduce the likeness which Jones' correspondent sent him....Humbugs have a wonderful vitality, and when we think they are thoroughly dead, will often turn up quite bright and lively. If there is one of the lot that we supposed to be more thoroughly dead than another, it is

THE WINE PLANT HUMBUG.

This flourished about 20 years ago, and its history is a sad one, as its victims were mostly farmers of moderate means, to whom it brought, if not absolute ruin, disaster from which they were long in recovering. Though the *American Agriculturist* opposed it steadily from the start, many did not see our warnings. The "California Wine Plant," as it was generally called, it was shown *upon paper*, would at once enrich any farmer who would invest in it. So many plants to the acre would yield so many gallons of juice; this, with so much sugar, would make so many gallons of wine, which at $3 (the price then named) per gallon would, you see, amount to the handsome sum of—we have forgotten how much, but a small fortune per acre. The plant, it was said, while it looked like rhubarb, was quite different, would make a wine which could not be distinguished from Sherry, and all that. Farmers in various parts of the country invested. Such was the infatuation that some mortgaged their farms to get money to buy Wine Plants. The chaps engaged in selling it, bought *rhubarb* from the nearest nursery or elsewhere, made it into small cuttings of Wine Plant, and sold it at an enormous profit. The rhubarb grew, the wine was made, and—that was the end. It is sad now to remember the samples that came to us—small bottles and big bottles of the stuff, begging us to sell it for the sender, and the pathetic stories that came with the samples. There was no sale for the so-called "Wine," a rummy, vinegarish wash that no one would drink and no one would buy, and nothing but loss came of it. Now we hear of

THE WINE PLANT IN VIRGINIA,

and that some large sales have been made. We beg our friends there not only to let it alone themselves, but to prevent others from loss by informing them of the utter worthlessness of the stuff. Squelch this miserable fraud right now.....Let those who visit New York—and we have no doubt the caution will apply to other cities—beware of

MOCK FURNITURE AUCTIONS.

A stranger seeing a flag flying at a stylish-looking house in one of the up-town streets of residences, and learning that "the effects of a family breaking up housekeeping, in consequence of their departure for Europe," are on sale may be tempted to enter. Perhaps he has come to the city in part to buy furniture, etc., and may think that here is a chance for a bargain—so there is, and a very bad bargain. There are parties who carry on this business regularly. They have the poorest furniture made for the purpose, in the showiest and cheapest manner, flashy paintings with the names of reputable artists attached, and everything else on the same scale. There is a regular set of stool pigeons, men and women, to do the bidding, who may be seen at these sales, the same persons week after week. The only safety for a stranger is to keep out, for these are among the worst swindling shops in the city, and are as much deserving the attention of the authorities as were the old Bogus Watch and Jewelry Auctions.

ANOTHER TRICK UPON FARMERS

has lately been played in Pennsylvania. The poultry speculator goes from house to house to buy fowls. He does business very systematically, and when he pays any one money he takes a receipt. Having made a purchase, he takes out his receipt book and proceeds to write the receipt. He writes rapidly and vigorously, as becomes a man of business, but just as he gets to where the signature is to be added—away goes the point of the pencil—"never mind; here is one of those fountain pens," which he takes from his pocket—"Nothing like having two strings to your bow, you know—capital invention, these pens that carry their own ink."—He hands the pen to the farmer, who signs the receipt. A receipt in pencil with the signature in ink, is easily converted into a promissory note for $150—or $200—as the farmer finds out when he gets a notice from the bank in the next town, that his note of a given date, discounted by the bank, will be due on such a day. Our repeated warning:

"FARMERS, BE CAREFUL WHAT YOU SIGN,"

will have to be modified to read "Farmers, be careful what and *how* you sign"—or, perhaps, better yet—"Be careful not to sign anything"—for strangers.

MEDICAL MATTERS,

while they present but little of novelty, show that frauds in this line are still practised. A correspondent in Washington Co., Ind., writes us, and we give the substance of his letter as an example of many others that come to us. He says in effect: "A neighbor of mine has something on the back of his hand, which he thinks is a cancer. A Dr. Starkey, of Philadelphia, who was here, says he is a cancer doctor, and proposed to cure it for $10. My friend paid him $2.50, he left him one little bottle of medicine, and promised to send more medicine next week. Nothing has been heard from him since. Do you know if there is such a man as Dr. Starkey in Philadelphia?

IF YOU KNOW HIM TO BE A HUMBUG

will you please say so in your paper."—We do not know if there is such a man in Philadelphia. We *do* know that any man claiming to be a "Cancer Doctor" has no proper right to the title of M. D., and can have no proper standing among regularly educated physicians. We also know that a man who will agree to cure a cancer, or anything else for $10—or any other sum, is a man we should most carefully avoid. We should not expect to hear again from one who asked $10—and took $2.50. The chap wanted money, took what he could get, and left. Whenever one offers to perform a cure for a given sum, you may be sure that he is a quack and not to be trusted....And now

THE FREE RECIPE DODGE

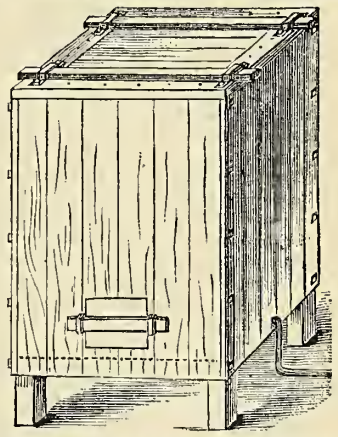
is being played by one Shorar of Rochester—after the manner of the old "Sands of Life" chap, and Inmann, and the rest; he advertises: "An old physician, retired from practice, having had placed in his hands by an East India Missionary, the formula, has felt it his duty to make it known," and all the rest of it. "Actuated by his motive, and a desire to relieve human suffering, I will send free of charge to all who desire it, this recipe."—It is the old, old story.—The recipe contains, among well-known drugs, others that are not known in the drug trade—names unknown to botanical, medical, or any other science. Of course the recipe would do no good unless the stuffs were of the right sort; druggists did not have the right kind, Shearer has made arrangements for their importation, he has the real stuff, which he will send for the cash, and this is the cat in this meal. It is a very old dodge, but it seems to work, and will be a money-making scheme so long as there are people foolish enough to believe these "Retired Physician" and "East Indian Missionary" yarns.

**Yellows in Peaches.**—Peach-growers everywhere, whose trees are affected by the curl or by yellows, will confer a favor by sending us specimens of the affected portions, with such notes upon the occurrence of the disease as may be of interest. Specimens in a well-secured parcel, tied so that it may be opened—using no paste or gum—will come as third-class matter. The parcel should be directed to "The Editors," and contain *no writing*. Remarks and notes may come by letter.

**Pleurisy in a Cow.**—"G. C.," Seekonk, Mass. The symptoms of pleuro-pneumonia are a state of fever, hot muzzle, dry skin, deep breathing, redness of the eyes, deep cough, costiveness, a discharge from the nose, the legs are turned out and the nose is held low and extended. By placing the ear to the side of the chest, a sort of crackling sound, like crumpling a newspaper is heard during breathing, in place of the usual natural murmuring sound of the lungs. There are parts of the space where no sound is heard, and when these are tapped by the gathered fingers, it is found dull and hard. In pleurisy there is no deep cough, but a short hacking and a peculiar short sharp quick inspiration, with a slow sighing expiration; the ear held to the chest detects a soft rubbing sound; there is no nasal discharge. As the symptoms in your case are the latter, the cow is suffering from pleurisy and not pleuro-pneumonia.

**Soldiers' Claims.**—"J. K.," Walla Walla, W. T. Soldiers' claims and U. S. land warrants can be purchased at about $1 per acre, from dealers in many of the large cities. These warrants were originally issued as bounty to soldiers of the Mexican and other of the earlier wars. For their services in the last war, soldiers are entitled to 160 acres of land, by personal residence only, and no warrants are issued; nor is the privilege transferable.

**Steaming Apparatus.**—"J. L. E." Fulton, Mo. An effective steam chest for fodder, is illustrated herewith. It consists of a box made of plank, with joints made steam tight with white lead, and drawn up with screw bolts. A row of bars is fitted 6 inches above the bottom, to hold the fodder up so as to admit the steam under it. A door is made at the top, through which the



fodder is thrown in from an upper floor, and it is taken out after having been steamed, through a door below. Steam is admitted at the bottom, by means of a pipe shown in the engraving. The feed is thoroughly wetted before it is steamed. A box 6 feet high and 5 feet square inside, will hold 100 heaped bushels, or feed for 50 head per day.

**Cornell University.**—Invitations to attend courses of lectures by Prof. Goldwin Smith and by Prof. Hermann von Holst, are acknowledged with thanks, and we take the occasion to commend the exquisite neatness of invitations and the cards of admission.

**Making Fertilizers from Bones.**—"J. Q. G.," Salisbury, Mass. When bones are treated with wood-ashes, the potash in these acts upon the gelatine, this weakens the texture, and allows the bones to be easily broken up. But in this process the bone phosphate is not changed; it remains in the same insoluble condition as before. Phosphoric acid can only be liberated in the soluble form by acting upon the bones with sulphuric acid or oil of vitriol. There are some processes which an individual can learn to perform upon a small scale, if he will study up the subject. Thus he can learn to tan hides and to bleach cloth; he could fit up a small mill, and convert his wheat into flour, and do many other things of the kind, but they will not pay. It is much cheaper for the individual to devote himself to the things that he can do well, and pay others for doing those which can only be properly and profitably done on a large scale. The fertilizer makers have large establishments, with powerful machinery and all needed appliances. The ordinary farmer can no more compete with these in making fertilizers than he can with a flouring mill in grinding his wheat. While we encourage the production of everything upon the farm that can be profitably made there, and spend much time in showing how to save a dollar when it can be *really* saved, we have of late years been convinced that it is better and safer for farmers in general to not attempt to make superphosphates. The

few who have the requisite tact and knowledge for this kind of work are a small minority, and these, if they wish to undertake it, will need no help from us. To farmers in general, unused to handling powerful chemicals, the process presents difficulties, and may be the source of dangerous accidents, and they, as a whole, had better not attempt to make bones into superphosphate.

**Pure Bred Stock.**—"T. C. R.," Allegheny Co., Pa. The only certain way of ascertaining the purity of the breed of any animal is its record in a trustworthy herd book. Such a record establishes purity of blood so far as the utmost care in securing proof can be used. By tracing the pedigree of an animal through the different owners of its ancestry, and by identifying these through the several transfers, fraud is made almost impossible, and the character of the ancestry and the probable value of the animal are ascertained. The chief value of herd books consists in this.

**Safety from Fire from a Steam Engine.**—"H. E. C.," Oxford, N. H. There is no doubt that steam can be used on many farms with economy, but the dread of fire prevents it. A safe arrangement can be made without trouble. It is not necessary to have the boiler in the barn, although it may be placed there without danger. A boiler-house may be placed 100 feet from the barn, and the steam carried in pipes protected with asbestos-covering to prevent condensation. Or a chimney may be built through the roof, and the pipe carried into it, and there will be no more danger than in a wooden dwelling-house with a shingle roof. The safer way is to have a detached boiler-house not less than 100 feet distant from the barn.

**Harrowing Young Oats.**—"D. W. L.," Westwood, Va. Upon smooth land the Thomas Harrow would be beneficial to young oats, but if the land is rough, and it is full of corn-stubble, the experiment would be risky from the danger of tearing out much of the crop.

**To Remove Warts.**—"H. S.," Hancock Co., Miss. Warts may be safely removed, or at least prevented from further growth, by the judicious use of caustics. The application, to be effective, should be of such a strength, as to corrode the surface only, and not eat into the body of the wart; it should be repeated as soon as the new surface has become freed from the decomposed portion. A solution of 10 grains of Nitrate of Silver, in one ounce of water would be sufficiently strong, or in place of this, Nitric Acid, diluted with four times its bulk of water, may be used to touch the surface of the warts.

**Canadian Horses.**—"C. W.," Lea, Minn. The horses known as Canadian, are descended from French stock, probably from the Percherons. To raise horses of good size, 1,400 lbs. or thereabout, a pure Percheron (not Norman) sire should be used. The Canadians are smaller than this, and would not be suitable for raising 1,400 lb. horses. The Cleveland Bays described in the *American Agriculturist*, or the Clydesdale would make good sires for the purpose referred to.

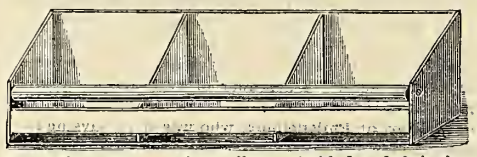
**Cultivating Oats and Barley.**—"P. L. J." Oats and barley, as well as other small grains, are benefitted by and need cultivation, though perhaps not always so much as wheat, as the latter tillers more, and has more roots. If a wheat-hoe is not available for the work, it will be well to give the oat and barley fields a light harrowing after the young plants are 4 to 6 inches high. This will serve as an initial experiment in cultivation.

**Shingle Machines.**—"J. A. P.," Coahoma Co., Miss. There are machines made for splitting shingles from steamed blocks, or for sawing them from dry blocks. They may be cheaply made in the manner described and illustrated in the *American Agriculturist* for Nov. 1871, which refers to steamed and split shingles. To make shaved shingles, the blocks, sawed as there described, are split by means of an instrument called a "frow," and are shaved in a "horse," shown at p. 223 of this number.

**The White Grub.**—Strange as it may seem, it is not generally known that the White grub—the large, fat, unpleasant looking caterpillar—is the larval state of the common May-bug or June-bug. The white grub is one of our most serious insect pests, for the reason that its work is done underground, and we have no knowledge of the *approach* of the enemy; we only know that it has *been there* when its work is done. Acres of lawn and meadow grass, rows of strawberry plants, and even rows of nursery fruit trees, and multitudes of other plants, including corn, are annually destroyed by it. In view of the destructiveness of the larva, every perfect insect should be killed. It is the brown beetle that comes into the house in the evening and makes such a noise by bouncing against the ceiling and elsewhere. Catch and kill. While there are more or less each year, the beetles are especially abundant once in three years, the particular year varying with the locality. When they are found clustering in the trees, a special effort should be made to destroy them. The beetles themselves eat the foliage of trees, and are sometimes destructive. They visit both forest and fruit trees, and in great numbers in the year of their abundance. In early morning they do not attempt to fly, and may be shaken from the trees and caught upon cloths spread to receive them. When we consider that with every female we destroy a host of possible grubs, it will be seen that this is the most effective method of dealing with this pest.

**Ashes—Plaster.**—"J. M. T.," Tilden Co., Ind. If those subscribers who have the back numbers of this journal would examine them before writing to us for information, they would often save themselves much trouble, as they would frequently find their questions already answered either in the "Basket" or some general article. The subject of "ashes" has been treated several times during the past year, but we are of course always ready and glad to answer any new questions....Unleached wood-ashes are a good fertilizer on most sandy loams, and are profitable in any quantity, from 20 to 50 bushels per acre. For wheat and other small grains, sow ashes broadcast, and harrow them in, before sowing the seed. They may be applied to fall-sown wheat in spring, to the extent of 25 bushels per acre, put on in the middle of the day, when the ground and plants are dry....Plaster can have but little effect in impoverishing the soil, though it may to a slight degree *when used alone*, as it furnishes but little plant-food, while it helps the plants get other food from the soil. Plaster is more profitable for a corn-crop on sod-land, where the soil is light, than on stubble, for the reason that its action is greater in connection with decaying organic matter than in a comparatively bare soil. See other items for replies to questions.

**An Improved Nest.**—"J. R. H.," Attleboro, N. Y., sends the accompanying sketch of a nest-box so arranged with a roller at the front that the fowls cannot roost upon it, nor stand on it to fight other hens from the next. The end partitions are raised 2 inches at the front



above the others, and a roller or 8-sided rod 2 inches thick, is fastened with a wood screw at each end so that it will turn easily and a hen cannot roost on it. There is an opening at the bottom in the front to air the nests.

**The Metric System.**—We received a few days ago, a postal card from a friend in Boston, along the upper edge of the message side of which, was printed, 13 *Centimeters*=one *Decimeter* and three *Centimeters* over to fill the space. Underneath this was printed, "To make the Centimeters familiar, the Metric Bureau 32 Hawley St., Boston, prints this without charge." We do not know what kind of a "Boston Notion" the Metric Bureau may be, but it takes *measures* in a matter of fact way to popularize the Metric System.

**Egg-Eating Hens.**—"W. A. B.," Cook Co., Ill. A nest with a false bottom may be used to circumvent egg-eating fowls. The nest is made with a false bottom, sloping from each side to the center, and one-half of it is raised sufficiently above the other to permit the eggs to roll down on to a lower bottom, which is covered with soft hay. When hens are inveterate egg-eaters, it is better to kill them than to bother with them.

**Whitewash the Outbuildings.**—Now that the hot weather has come, it will be necessary to clean up the buildings to prevent the increase of vermin. A good coat of whitewash well dashed on and into every corner will be very beneficial, and will not only kill lice and fleas and their eggs, but will purify and sweeten the places. A convenient way to apply the wash is to make a barrelful and spread it with a Whitman fountain pump, dashing it into every corner and crevice. In this way there need be no danger of soiling the clothing or the hands, especially if a pair of mittens be worn.

**Hungarian Grass for Cows.**—"C. H. D.," Smithtown, Iowa. Hungarian grass is a useful green fodder crop, but it makes coarse hay, and is inferior to oat-hay or corn-fodder. Sugar-beets, which may also be planted this month (June) will also make a winter feed superior to Hungarian grass. This grass grows on any good land, and matures for cutting in eight weeks.

**Peas and Corn for Fodder.**—In place of oats and peas grown together for green fodder, we have of late grown corn and peas; dropping one row of corn and then a row of peas close to it; the double rows are made 3 feet apart, and are cultivated in the usual manner. If the early small corn is grown, the two crops may be sown late in this month, or early in July, and the rows may be made 30 inches apart. It may be used green or cured for winter feeding. The peas fasten themselves to the stalks, and a very dense growth is made.

**Artificial Food for Calves.**—"T. R. C.," Mineral Co., W. Va. When milk cannot be found for calves, a substitute can be made by pouring boiling water upon some hay, and mixing with a sufficient quantity of this hay tea a quart or more of gruel made as follows: Take a quart of flour, tie it in a cloth and boil it three or four hours; when it is cold, grate a tablespoonful and boil it in one quart of water, with a tablespoonful of linseed meal and a little salt. This gruel may be diluted somewhat if too thick. If the calf suffers from diarrhœa, substitute cotton-seed meal for the linseed, and add a teaspoonful of prepared chalk to each mess of gruel. When there is an irregular supply of milk, too much at one time and none at another, the surplus may be boiled and set away in tightly corked bottles for use in time of scarcity, and then helped out with the above mixture.

**Salt for Sheep.**—When sheep are turned on to the grass, a daily allowance of salt should be given. A teaspoonful for each sheep is sufficient. The safest way to give the salt is to provide a lump of rock salt in a convenient sheltered place and leave it so that the sheep can go to it when they wish. Salt prevents indigestion, and greatly discourages parasites in the intestines.

**Seeding a Reclaimed Marsh.**—"D. H. M.," St. Louis, Mo. The surface of a marsh that cannot well be plowed, may be cut up and pulverized by the disc harrow. This can be weighted so as to make a sufficient impression upon the tough surface to make a good covering for the seed. Timothy and Red-top are the best grasses to seed down with. Ten lbs. of Timothy, and 14 lbs. of Red-top seed will be sufficient for one acre.

**Second Crop Clover for Feed.**—"J. H. D.," Adams Co., Ohio. When a second crop of clover can be cut while it is soft and succulent, and before the stems have become woody, and if it is cured in the cock and not in the full sun, it will yield very acceptable and good fodder. Otherwise it is not only poor feed, but is unhealthful. In this case it would pay better to leave it to die down on the ground as a protection for the next year's crop, and as a fertilizing material. When the season is dry, second growth clover is apt to be hard and indigestible, and unfit for fodder. It may, however, be cut for litter with advantage.

**How a Young Horse Can be Spoiled.**—"F. H. R.," Macoupin Co., Ill. When a young horse acts badly in harness, it is because he has not been properly taught his business. To whip and ill-use him is to spoil him. A horse is naturally willing and docile, if well used, and much may be done by kindness, patience, and judgment in removing the ill effects of wrong treatment. A colt should be trained when young, and gradually taught its duties; the greatest care should be taken to avoid frightening or irritating the animal, and much patience should be exercised. If the animal refuses to do what is required, punishment will make matters worse; something should be done to distract its attention, when it will generally become docile.

**Crops for Plowing Under.**—"J. N. H.," Lancaster, Pa. The most available crop for plowing under is red clover, but a heavy growth cannot be produced on poor land without a liberal application of artificial fertilizer. Winter rye may be used for this purpose, but it is not worth nearly so much as clover. Buckwheat ranks next to clover, and can be grown more quickly, it may be sown in May, and after turning under, a second crop may be sown in July to be plowed in in September. Perhaps the best plan would be to sow buckwheat and plow under two crops, following with rye, and plowing that down in May or June, the second year, and then seed to Orchard grass and clover, if grass is wanted. In this way a crop of hay may be taken the same year that it is sown.

**Seeding Swamp Meadows.**—"W. H.," Wythe Co., W. Va. Timothy and Red Top or Orchard Grass, are suitable kinds of grass for moist meadows. If too rough to plow, the surface may be cut up and loosened with the sharp disc harrow, which leaves the ground in better condition than by plowing and ordinary harrowing.

**Tumors in Cow's Teats.**—"H. G.," Crathie, Ont. The tumors or nodules which form in the cow's milk ducts are difficult to remove; the duct, however, may be opened by means of an instrument made by inserting a small blade of a penknife in a slit in the side of a thin piece of whalebone rounded at the end and polished; the instrument is inserted in the duct, and the edge of the blade which projects a sixteenth of an inch cuts the tumor and opens the passage. A small wooden plug is put in the duct to prevent closing until it heals.

**Raising Calves without Milk.**—"J. A. S.," Dracut, Mass., gives the following hints as to raising calves without milk. I find oil meal preferable to either meal, find feed, or shorts, first boiling the oil meal in water before mixing with the skim milk, and taking especial care that the "porridge" be of the temperature of new milk, and commencing at first with a tablespoonful of the oil meal. Giving porridge of any kind to calves, warmer than new milk, will he almost sure to "scour" them.

**Soiling Cows.**—"J. B. W.," Westminster, Mass. Directions for growing fodder crops are given at the proper season in Hints for Work. Those hints should be read carefully every month, as they are intended to give information on most farm operations that will meet all except very unusual cases. "Quincy on Soiling" is the only book on this subject. This system of feeding will pay best where manure and fodder are the dearest.

**Grass without Plowing.**—"S. W.," Seneca Co., Ohio. Meadows may be improved by harrowing and sowing fresh seed, and using some fertilizer or fine manure. It is not always necessary to turn under a sod to re-seed with grass. In the majority of instances it may be done better in the way indicated; but it should not be left until the grass is totally destroyed in large patches and the ground occupied with weeds. It may he done at any time before July, and if 200 lbs. of artificial fertilizer, 20 or 30 bushels of wood ashes, or a few loads of fine manure, he harrowed in with the seed, the catch will be made successful even in unfavorable weather.

**Cats in the Poultry House.**—"J. S. W.," Suspension Bridge, N. Y. It is difficult to keep cats out of places where fowls can enter. There may he a method of excluding them known to some of our readers which we should be glad to hear of. A cat that will suck eggs should he executed.

**To Utilize Bones without a Mill.**—"J. N. H.," Palatine, W. Va. Where there is no mill to grind them, bones can only be made useful as a fertilizer by burning; the burned bone contains all the valuable portions except the nitrogen, and as that can not be saved, the loss must be borne as unavoidable. In many places it might pay a miller to have a bone mill.

**Mustard as a Crop.**—"J. W.," Eau-Claire, Wis. There is very little demand for mustard seed for grinding, and as a fodder crop it has some disadvantages which make it undesirable when there are so many other kinds that are unobjectionable. Mustard may be sown early in the spring and may he pastured, or cut green, when about ready to blossom. If left longer, some seeds will mature to stock the ground and make it weedy.

**Materials for Compost.**—"E. V. X.," Trappe, Md. Marsh sod, lime, and wood's earth, either by themselves, or mixed with barn-yard manure, will make an excellent compost; saw-dust added would make it too dry. The best use of the saw-dust would be to make litter or an absorbent of liquid manure of it. It might then he used in the compost to better advantage.

**The Lilly Butter Worker** was exhibited at the International Dairy Fair in December last, and attracted much attention. In the hurry of arranging the details of this exhibition, no premiums were awarded to Butter Workers, an omission to be regretted, and one which will no doubt he remedied another year. The makers of the "Lilly" at the time, complained of the neglect, as they claimed that their machine did the best work of any on exhibition. At the time, we prepared an item to this effect, but it was crowded ont by press of other matter. It is hut just to say that the "Lilly Butter Worker" has sustained the repntation for which we gave it credit, in Jan. 1878, being simple, easily worked, readily cleaned, and doing good work with a motion closely approaching that of the hand ladle. The Lilly Butter Worker is now made by C. H. R. Triebels, Philadelphia.

**"Plymouth Rocks."**—Though a recent breed of fowls, the Plymouth Rocks have already attained sufficient importance to have a work devoted to their history, characteristics, etc. Mr. F. H. Corbin, of Newington, Ct. tells the story in a neat volume of nearly 100 pages, which also gives designs for poultry-houses, and useful hints upon poultry management in general. Sent postpaid from this office for 75 cts.

**Garget.**—"S. P. R.," Richmond Co., Ga. Garget is a disease that requires immediate attention. Directions for managing this trouble have been frequently given in the *American Agriculturist*, and there is not a recent volume without many items in regard to it. The disease is almost always caused by neglect, and may be easily prevented. When it occurs, the treatment is, to give the cow a strong saline purgative, such as 12 to 16 ounces of Epsom Salts, and 1 ounce of Saltpeter the next day; the udder should be rubbed with the hand and fomented with hot water, and if the milk is clotted, a solution of one teaspoonful of baking Soda in a teacupful of water should be injected into the affected teats by means of a small syringe, and milked out soon after. The udder should be treated in this way until it returns to its natural condition; meanwhile, the feeding should he light and the reverse of stimulating. Prevention consists in watching the cow as her time approaches, feeding lightly and drawing the milk, if the udder is full, before calving.

**Jersey Red Swine.**—Mr. John L. Collins, Moorestown, N. J., already well known as a dealer in small fruits, is also engaged in the breeding of the Jersey Red Swine, which have long been known in portions of New Jersey, and further south, and are now receiving attention elsewhere, as remarkable for great weights at an early age.

**Salt on Wheat.**—"T.," Ind. See the *American Agriculturist* for last October, page 394, for the effect of salt on land, and how to apply it. To increase your 15 bushel per acre wheat crop, salt is not a very good fertilizer, because, while it *may* increase the crop for a single year, it will tend to exhaust the resources of the soil.

(*Basket Items continued on page* 239.)

## The Department of Agriculture.

When he appointed Gen. William Le Duc as Commissioner of Agriculture, the President succeeded in thoroughly surprising the whole agricultural community. It was natural that the placing of a man, before absolutely unknown in agriculture, as the official representative of the most important interest of the country, should cause astonishment, and for a while "who is Le Duc?" was the conundrum of the day. When the appointment was made, it was adversely criticised, and the new Commissioner denounced in advance. At that time, Aug., 1877, we said: "So far as the *American Agriculturist* is concerned, we welcome him to the office with our best wishes for a successful career, and he shall have our support until he proves himself unworthy of it." If we have said little about the Commissioner, it was because there was little to say. The papers, mainly the daily papers, by their Washington correspondents, have made themselves distressingly funny over the Commissioners proposition to cultivate tea in this country. These gentlemen did not think it worth while to ascertain what was proposed, but at once denounced the whole scheme. Now in looking over the career of this present Commissioner, about the only good thing we find in it is the fact that he gave publicity to the suggestion of one of his subordinates that, under certain conditions, and for certain uses, the tea plant might he properly introduced in those parts of the country where it is hardy. For so much we give the Commissioner credit. For the rest we find little to say. We have kept ourselves pretty thoroughly advised as to the interior of the Department, and know that it has been during the present as it has been through former administrations. There is, as there has been, an excellent working force; the subordinate places or heads of departments have been, as a general thing, filled by men capable of whatever work may be required of them. The department has been well equipped in every respect, and only wanted a *head* to enable it to do good work. As we have understood the case, it has been thus: The Commissioner, aware that he knew nothing himself about agriculture and the collateral sciences, was jealous of his subordinates who did know something, and fearful that they should get some credit apart from himself, found means to make the positions of these subordinates very uncomfortable. We have for some time heard the rumblings of the storm that has broken out in the resignation of the Entomologist, Prof. C. V. Riley. It is the old story of Watts and Doct. Parry over again. A man out of place as Commissioner, did not know that in becoming a subordinate, a man of science did not sell his independence or give up his claim to be treated as a gentleman. There is much talk about the forced resignation of Prof. Riley, and great sympathy expressed for him. For our part, we are glad that he is not buried in the Department of Agriculture, but is where the country may still have the benefit of his valuable services. The Washington correspondents state that the enforced resignation of Prof. Riley will lead to a Congressional investigation. We don't think that Riley will care much for this, but we think that the leading seedsmen of the country will like it. The seed distribution as it has been heretofore and is now managed, is simply an outrage. Why should the seed-trade, of all others, he selected for the opposition of the great U. S. Government, and these goods be *given away*, while all other trades are allowed to sell their goods without Government interference? But if seeds are to be given—or thrown—away by the Government, why should not all seedsmen have a chance in supplying them? Seeds went from a former Commissioner's own farm. Are anybody's "sisters and their cousins and their aunts" now furnishing seeds? This seed-trade has been a stumbling block heretofore; how is it now? If there is to he a Congressional investigation—and we hope there may—it need not bother itself much with the present Commissioner. The matter lies deeper than that. The Department was established, if we mistake not, in 1862. It has had a trial of 17 years—What has it done? We do not array the sums that have been appropriated—for we hold that had they been ten times as large, they would have been well expended had they helped agriculture at all. If there is an investigation, let the investigators start at the bottom and first ask—Do we need a Department of Agriculture—if so, what for? What shall be its duties, and how shall the Department be made useful? The agriculturists of the country have a right to demand that if the Government meddles with agriculture at all it shall do so in a manner that will not belittle their pursuit. They do not want a Department that seems to be run for but two ends—to afford an asylum for some nobody, and to send ont poor seeds at public expense. Thus far the affair has been simply ridiculous. The first Commissioner was Newton, ex-milk-man, who held his place through kitchen influence at the White House—the story connected therewith doing more credit to Mr. Lincoln's heart than to his judgment. Then followed Col. Capron, who for the time he held the place at least made it respectable, but the Emperor of Japan called louder than Uncle Sam, and he went. Then we had Mr. Watts appointed, it is said because he was hospitable to the then President while he was on a fishing excursion. Watts was great on the signs of the Zodiac, and when he took his pen in hand the English language had to "get up and git." We never knew how Watts went out, but he went—Le Duc came in, and there we stop.

## Pearl Millet.—Peter Henderson.—The "Planter and Granger."

The *American Agriculturist* catches it! A paper called the "Planter and Granger," published at Atlanta, Ga., gives us, so to speak, "a piece of its mind"—not openly, but over the back of Mr. Peter Henderson. As a general thing, when such journals attack us, we feel like the blacksmith whose little wife used to beat him; when a friend remonstrated with him for allowing such domestic relations he replied: "It doesn't hurt me, and seems to do her lots of good."—When such attacks are made we usually ignore them altogether, the thing of all others most annoying to the assailants. In the present case we might pursue the same course were not our contributor, Mr. Henderson, attacked instead of ourselves. The article in question says that Mr. Henderson "is making a great blow about his 'Pearl Millet.' He has written marvellous accounts of its wonderful productiveness and richness, and is selling seed in fancy paper packages at $1.60 per pound. * * * The Pearl Millet is nothing in the world but the well-known 'Cat-tail Millet.' * * * Any quantity of the seed can be bought of ——, Atlanta, for 20 cents a pound, something of a saving over $1.60 a pound. This Millet can he cut four or five times a year. The writer has raised it for several years, having a small patch in drill for cutting green for cattle. Now Mr. Henderson is making a good thing out of it. He has by sharp management, big blowing, and judicious advertising, gotten up a sensation and a big run on it. It is an old thing under a new name. It is this sort of clap-trap business that does harm to agriculture. Pearl Millet is treated by Mr. Henderson as a new forage plant when it is an old one. * * * We hope our exchanges will explain this and all such similar frauds, that people may not be deluded. The Cat-tail Millet is a fair forage plant, and every farmer should have a patch for green soiling. But let no one he simple enough to pay Mr. Henderson his extravagant fancy price for seed under a fancy, spurious name, when the same thing under its proper name can be bought for one-sixth the price."—This is the "Planter and Granger's" rather rambling and incoherent indictment against Mr. Henderson. It is a well known rule, *false in uno, false in omnibus*—false in one, false in all. We can test the strength of the indictment by examining a single clause. This writer says: "Pearl Millet is treated by Mr. Henderson as a new forage plant when it is an old one."—Let us see about this. Mr. Henderson's first publication concerning this plant appeared in the *American Agriculturist* in Nov., 1878, p. 420. His article begins: "Pearl Millet has been cultivated for some years as a forage plant in some of the Southern States, as 'African Cane,' 'Egyptian Millet,' 'Japan Millet,' and in some places as 'Horse Millet;' but little was known of it at the north before last year."—Does this look like treating it as a "*new* forage plant?"—Were it worth the while, we could show the falsity of other statements. The article charges that Mr. Henderson offers the seed under a "spurious name."—We are interested in that charge, for so far as we are aware, we were the first to publish the name "Pearl Millet." In January, 1878, we gave an engraving and description of the plant; we had five names by which the plant was known in different localities from which to choose, three were geographical names, which are also applied to other plants, and thus confuse; one was "Horse," of no special fitness, and the other "Pearl," having reference to the appearance of the seed, and that

was chosen as the least objectionable name. We were not then aware that there was a high authority on names at Atlanta, Ga., or we might not have dared to select a name without asking permission. That name "Pearl Millet" is fixed, however persuasively this writer may wave his "Cat-tail." We say "fixed," as all the accepted rules for establishing a name have been complied with—what these rules are, a high authority that can pronounce names as "spurious" is supposed to know. Even were his "Cat-tail" a "Cat-o'-nine-tails," we shall continue to call the plant "Pearl Millet," and if asked why, will quote the old song, which says:

"We allus call'd him Sambo,
A 'kase it was *his name.*"

Those who are accustomed to "read between the lines," can readily see the animus of this unwarranted tirade against Mr. Henderson. The plant was written of by others long before Mr. Henderson published any thing about it. Indeed, some one made a "great blow" about this same plant as long ago as 1858, and, we will add, for Mr. H.'s comfort, that person still lives. If we mistake not, other seedsmen advertised the seed before Mr. H., and all the leading dealers offer it with impunity, while he alone gets the abuse. The article means just this: "We have long had an excellent forage plant, but never thought to tell any one about it. Some sharp chaps got hold of it and tried it, they then went and made a 'great blow' about it, and people wanted seeds; they just went and sold seed, all they could get, at a dollar or more a pound, while our seedsmen would have been glad to sell their seed at 20c. a pound. We'll publish the head one of these sharp chaps, which his name it is Henderson, as a fraud. We can't deny what he has said about the plant, because we know that, and more, to be true; but he don't call it by the name it is known by in all our neighborhood, and we'll get him on 'spurious names,'—yes, and he gets five or six times more for his seed than our people can, and that's an 'extravagant fancy price.'"—We would suggest to the "Planter and Granger" that numerous seedsmen advertised as early as February and March Pearl Millet at $1 per lb.—we have seen none at $1.60. A little business enterprise would have suggested to those who have "any quantity of the seed * * for 20 cents a pound" to advertise the fact in the *American Agriculturist.* But instead of this they prefer to abuse Peter Henderson. This article is written entirely without Mr. Henderson's knowledge, as an act of justice to him—and having perhaps done as much as any one to make Pearl Millet known, partly in our own defence. The article in question is not only libellous, but a libel with malice, and we have not the least doubt that in any proper court Mr. H. would be awarded exemplary damages from those who have promulgated it. The article has been copied by other journals—indeed, we only learned of the existence of the "Planter and Granger" from seeing its libel accredited to it in other papers. What the "Planter and Granger" may do is of the least possible consequence, but is it too much to expect that respectable journals, who have inadvertently copied this libel, will inform their readers that the charges against Mr. Henderson have been shown to be groundless?

## Moles—Traps and Poison.

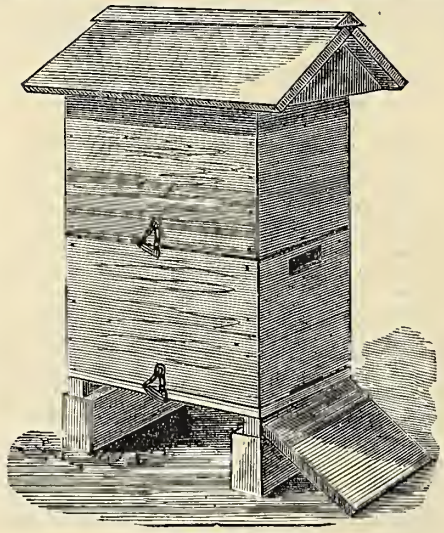
The request for the experience of our readers in ridding their grounds of moles has brought out a large number of designs for traps, some of which seem to be novel, while others appear to be like those we have already published. We have not been able to study and compare these and have the needed engravings made for this number, but hope to do so for our next issue. Besides the use of traps, there have been other methods suggested for getting rid of moles. One of these is to open a run carefully, and drop into it a little gas-tar. The mole in passing through the run will get so bedaubed that he will leave it in disgust. But will he not make another run, and thus increase the trouble?.... Another correspondent, "J. P.," Jr., Fairfield Co., Conn., says: "Take a small piece of dried Cod-fish skin, and place it in the runs, and the moles will never trouble you any more. I have never known it to fail." ....Another says he soaked peas in a solution of Sugar of Lead, and had fair, though not complete success.... In the matter of poisoning, several correspondents agree in advising the use of Strychnine. We give the substance of a letter from "V. D. V. N.," Hightstown, N. J., as the most direct of any of the several letters on the use of Strychnine. We recollect that in our only visit to Hightstown, many years ago, we found the good Isaac Pullen sorely troubled with moles in his strawberries; he was using a trap which he thought effective. Our correspondent writes: "I would say that traps have been used about here for many years, and the moles, in the places where they have been used, are about as thick as ever. I have used Strychnine with complete success. Take a kernel of corn, and with the point of a small knife raise a portion of the germ [or 'chit' as it is often called—the white soft place in the center of the grain.—ED.] In the cavity thus made place a bit of Strychnine the size of a pin's head, or a little larger; press the raised portion down smooth, and place the grain thus prepared in the runway, covering it up so that no other animal will get at it. The first time the mole comes that way, it will eat the corn. Rats, mice, and moles always attack the germ of the grain first, and for this reason we put the poison there." As several have written of their success with Strychnine (some first soaking the corn, others soaking peas, and introducing the poison in a similar manner), the method appears to be worth trying.

## Bee Notes for June.

BY L. C. ROOT, MOHAWK, N. Y.

### SURPLUS HONEY.

As early in June as the stocks become populous, and honey is being gathered freely, preparations should be made for securing surplus honey. If box honey is desired, the boxes should be arranged in place upon the hives. If extracted honey is preferred, extra empty combs



TWO-STORY HIVE.

should be supplied for the purpose. These may be placed at the side of the brood-combs, if space is afforded, or at the top, by using the two-story hive, as shown in the engraving. The manner of adding empty combs will depend upon the kind of hive used. If there is not a supply of empty combs for this purpose, frames filled with comb-foundation may be used. This foundation was described in last month's "Notes." The cells will soon be drawn out and the combs completed. As fast as boxes are filled, remove them, and replace with empty ones, having a care to not put on many near the close of the honey yield.

Box honey should be kept in a *dry* dark room. It should be examined occasionally during the warmest weather to see that the moth does not disturb it. If signs of moth-worm are detected, the boxes should be placed in a box or barrel and fumigated with brimstone. Extracted honey should be kept in a warm, dry place, in open vessels, where the moisture may be evaporated, and the honey properly cured.

### SWARMING.

In northern latitudes natural swarms will issue most freely during this month. The management best for the bee-keeper to adopt, will, of course, depend upon his object. If increase of stocks is his aim, entirely different methods will be necessary than if surplus honey alone is desired. If the latter is the object, and no increase is desirable, it will then be necessary to determine in what form the surplus is to be obtained. If it is to be taken with the extractor, the beginner may reasonably expect to be successful in preventing swarming, but if box honey is desired, swarming will be more difficult to control. If the store combs are emptied with the extractor once a week, or oftener, room is given the queen to deposit eggs freely and ample facilities for storing honey are provided as well. For these reasons, stocks so managed seldom attempt to swarm. There are many reasons why this mode of securing surplus is preferable. Unrestricted natural swarming is never desirable. If box honey is preferred, perhaps the safest course for beginners to follow is, to allow one swarm to issue from each stock, and prevent all after-swarms, as this practice will most nearly meet the demands of the average season, giving moderate increase, and a fair proportion of surplus honey. Hives for swarms should be kept in readiness. When a swarm issues, hive it, and place it at once upon the stand it is to occupy. On the issue of a swarm, it is desirable to take one or two combs of brood from the old hive, and after removing all queen-cells from these, place them in the new hive that is to receive the swarm. This will usually prevent them from leaving for the woods. The place of these combs in the old hive should be filled with empty combs or frames filled with foundation. About three days after the swarm is hived, the boxes from the old hive, which will usually be partly filled, may be placed upon the new one, where they will be completed much sooner than if left upon the old hive.

### PREVENTING AFTER-SWARMS.

To prevent after-swarms, it will be necessary to supply the old stock with a queen. This may be done by removing all queen-cells (cutting out with a sharp knife) and introducing a laying queen. Or, if it is not thought best to procure a queen for this purpose, the stock may be left until eight days from the issue of the swarm, and then, all queen-cells but one should be removed; the cell thus left will soon hatch. The largest and most fully matured cell should be selected for this purpose. There is the disadvantage in this method, that the stock is left too long queenless. When it is borne in mind, that, under the most favorable circumstances, a prolific queen will deposit 2,000 eggs per day, the benefit of keeping all stocks supplied with a laying queen at all times, is obvious. Unrestricted natural swarming is open to the same objection. If any desire to run their bees entirely to increase, rather than surplus honey, it may be done by dividing, or, in other words, making artificial swarms, without waiting for them to issue naturally. When a stock is populous enough to spare a swarm, take out one card of brood with the old queen, put it in a new hive, and place it upon the old stand. Remove the old hive with the remaining combs, (filling the vacancy with an empty comb, or foundation), and the bees adhering to them, to a new stand. This should be done on a fine day, when the old bees are working freely. These will return to the old stand, while the bees adhering to the combs in the old hive are mostly young, and will remain in the new location. This last colony should be at once supplied with a laying queen, previously provided. This course may be repeated as often as the condition of the stocks, and yield of honey will warrant.

### ANSWERS TO CORRESPONDENTS.

PEA-BLOSSOMS.—"Do bees gather honey from pea-blossoms?"....Not to any great extent.

BEES IN A BUILDING.—"Will bees do well, if kept in a barn or other out-building?"....Yes, if proper alighting boards are arranged outside.

SEALING EXTRACTED HONEY.—"A. A. R.," New Jersey, asks "When extracted honey is put in cans or jars, should they be made air-tight?"....Unripe honey should not be sealed up until the moisture is thoroughly evaporated. When well cured, it may be sealed.

## Spreading Manure.

The old-fashioned method of plowing under manure has become obsolete. Good farmers now no longer follow old fashions because they are old, but having become used to think for themselves, and knowing much more of the science of their art than was known a score of years ago, they are ready to strike out new paths for themselves. The common method with manure now is, to keep it as near the surface, and to intermingle it with the soil, as much as possible. We have discovered that in feeding plants we must not only place the food within easy reach of the roots, but must also supply the best food in the best condition. These conditions are secured by a thorough mixture of the manure in as finely divided a condition as possible throughout the upper three or four inches of the soil.

The best practice is, to spread the manure upon the plowed ground, and to work it in with the harrow. This is most conveniently done by having manure in a fine condition. Fine manure may be made in two ways; either by piling it and rotting it in the heap, or by using only short litter. It is found in practice that it pays to cut the litter with a fodder cutter, so that it will not only absorb more of the liquid manure, but that it can be easily spread when fresh. The ordinary harrow will then mix the manure with the soil in the most effective manner. With long manure the work is not so easily done, but it may be accomplished by persevering. The manure will be drawn into heaps, doubtless; but by forcing the harrow and spreading these, and harrowing again, and again if necessary, the desired result will be attained. There are some improved kinds of harrows which do this work much better than others. The sloping tooth harrow acts favorably by pressing the manure into the soil, and drawing the earth over it; the flexible chain harrow has the same effect; but the steel

disc harrow not only does this, but it cuts and breaks up the long litter, and reduces it to fragments. This harrow consists of a series of thin, sharp-edged discs, which revolve upon axles in a different direction from that of the movement of the implement. Each disc thus not only cuts into the soil, but it throws up a small furrow of light soil behind it, this latter effect being assisted by the concave or saucer-shaped form of the disc. The result is very satisfactory either when sod has been turned down (and this comes under the head of manuring), or when coarse manure is to be spread; the soil, too, is left in a very favorable condition for sowing or planting. These short hints may be found seasonable at any time, because the making and use of manure is a work of every day in the year in one way or another, or should be.

## A Run Through the Peninsula.

### Editorial Correspondence.

During the past year we have published Editorial Correspondence setting forth the advantages of Kansas, Nebraska, Minnesota, and other Western and North-Western States for those seeking new homes. There are other regions of country in the East and South, which likewise hold out inducements to those who may desire to engage in fruit raising, gardening, or general farming, and who require a warmer climate than is found in the far West. One of these regions is the Peninsula bounded by the Delaware Bay, and the Atlantic Ocean on the east, and the Chesapeake Bay on the West, and commonly denominated "the Peninsula." It comprises the entire State of Delaware, the Eastern shore of Maryland, and two counties of Virginia. The area embraces about 6,000 square miles, of which ⁹/₁₀ths constitute the State of Delaware, ¹/₁₀ths the Eastern shore of Maryland, and ²/₁₀ths are within the limits of Virginia. The climate is mild and genial. The soil is easily cultivated and the seasons are early. Baltimore, Philadelphia, and New York are within easy distance, and lands formerly comprising large plantations, are now being divided, and can be purchased from $10, up to $100 per acre. The population of this Peninsula now amounts to some 300,000. It is claimed, owing to the above reasons, that there is room here for a population of fully 1,500,000. During the month of May, we made a pleasant trip through this region of country, and were favorably impressed with what we saw, especially in Delaware. The accompanying map shows the route we travelled. The native inhabitants appeared desirous to have Northern people settle among them, and the latter,—those with with whom we conversed,—appeared well pleased with their new homes.

MAP OF THE PENINSULA.

### Inducements for Manufacturers.

Leaving the main line of the Philadelphia, Wilmington and Baltimore R. R. at Delaware Junction, near Wilmington, we soon reached the venerable city of New Castle, which, as an inducement to manufacturing interests to locate within her limits, exempts manufacturers from all taxes for a period of ten years. The Triton Cotton Mills, the Tasker Iron Works, Steel Rolling Mills, Flour Mills, Cotton Warp Mills, and other industries are in full operation. A few miles further south we entered a tract of rolling country, dotted with handsome residences, and herds of Hereford and Shorthorn cattle. Fine crops of wheat and corn are also raised here, and large orchards of apple and peach trees meet the eye in every direction. Buena-Vista, the former home of John M. Clayton, Secretary of State under President Taylor, was pointed out. It is now managed entirely by its owner, Miss Douglass, a niece of the deceased statesman.

### The Great Peach Region.

From Bear Station, fine farms are seen on both sides of the railroad. Reaching Kirkwood, we entered upon the great peach district, 100 miles in length, and having an average width of 30 miles. The land is rolling, and has a red clayey subsoil with a sandy loam. At Mount Pleasant, the eye rests upon a level country, extending from bay to bay, covered with farms devoted to peaches, strawberries, blackberries, apples, etc. One of the farmers stated to us that corn here yielded from 40 to 60 bushels per acre, and wheat from 25 to 30 bushels per acre. Extensive hedges of Black Thorn and Osage Orange are to be seen. Four miles west of this station lies Wheatland, the former home of Major John Jones, a great agriculturist in his day, who was one of the founders of the United States Agricultural Society, and was also very active in having the Department of Agriculture established at Washington. The farm is now owned and cultivated by his son, John A. Jones, who has invented several agricultural implements.

### Shipping Peaches.

Nearing Middletown, we passed the Fair Grounds of the Peninsular Agricultural and Pomological Association. The annual exhibitions here are largely attended by people from the surrounding country. Middletown, 24 miles from Wilmington, is in the center of a rich farming district. Though wheat, corn, and cattle are raised here, the peach crop is the main industry of the farmers. The fruit is shipped to Milwaukee, Chicago, St. Louis, Buffalo, Toronto, New York, Boston, and other places. While New York is the main point of destination, the shippers make serious complaints against the charges of the commission merchants of that city. The prices from Jersey City to the stalls in New York are beyond all reason, they assert. The cars for the transportation of fruits are built upon passenger springs and trucks, are well ventilated, and fitted up with strong shelves, upon which the fruit is securely stowed. Fruit loaded on the cars will stand transportation over 1,000 miles, or from 50 to 60 hours of continuous running, if gathered in proper condition.

Leaving Middletown, we passed several establishments for preserving fruit, by evaporation. The road lay through one continuous series of peach orchards, until we reached Townsend, the junction of the Kent County and Queen Anne's Railroad. This is the highest altitude of the Peninsula, being 96 feet above the tide level. The land is of a heavy clay, and well adapted to grass and wheat. Nearing Green Spring, we entered upon an area of small fruits, and thrifty cherry orchards of "Early Richmond." Here connections are made with the Kent County and Chesapeake Railroads; the former running to Chestertown, the county seat of Kent County, and the latter to Easton, the county seat of Talbot County.

### Fine Fruit Farms.

It is a matter of regret that time would not allow us to visit Kent Co., Md., where, in the vicinity of Chestertown, are located some of the oldest and finest fruit farms of all this region. Not far from Chestertown are the orchards of the late Col. Edward Wilkins, by whose death, last December, the country lost one of its most intelligent and enthusiastic fruit growers. His orchards were, at one time, the largest on the Peninsula, and consequently the largest in the world. Near by are the celebrated orchards—largely in pears, of Mr. Emory, and those of Mr. Blakiston, and others, which we should have been glad to visit had they not been outside of our prescribed route. Comparatively little of the fruit from this district goes to New York and other northern markets, the bulk of it being taken by the canning establishments at Baltimore. The operations of Col. Wilkins were on so large a scale that he ran his own steamer from the wharf at his orchards to Baltimore. Those who live here, claim that it is one of the garden spots of the Peninsula. Considering the fact that the inhabitants are confined, in their season, to Oysters, Soft-Shelled Crabs, Terrapin, Canvas-back, Red-heads, and other Ducks, with no end of fish, while there is a profusion of fruit, we must say that they manage to survive in spite of their surroundings.

### Dover.

Passing Brenford and Moorton we reached Dover, 47 miles from Wilmington, and the capital of the State. It is a very pretty place, of some 2,000 inhabitants, having a post-office which cost $70,000, and several other fine public buildings. Not far from the town are seen the handsome grounds of the Fairview Park, an agricultural society which gave its first exhibition last year. Among other industries we visited here were the canning works of Messrs. Richardson & Robbins. They have about $175,000 capital invested, and put up fruits and meats to the value of about $250,000 annually. As many as 180,000 pounds of poultry have been consumed in the canning operations here within three months' time. Twenty-four years ago, Mr. Richardson, who is a Massachusetts man, started the enterprise in a small way by canning peaches with the aid of a cooking stove. The tomb of John M. Clayton is pointed out to visitors in the Presbyterian Church-yard. Dover is the residence of Judge James Alexander Fulton, whose "Peach Culturist" is the standard work on the cultivation of the peach.

### An Old Subscriber.

Near Wyoming Station, a few miles from Dover, we visited the farm of Mr. A. H. Carey, who has been a subscriber to the *American Agriculturist* for a score of years. Mr. Cary went from New York State to Australia, and after remaining there thirteen years among the mines, came to this spot some thirteen years ago. He now has a most flourishing farm of over 400 acres, which embraces about 75 acres in peaches and apples, 15 acres in pears, 30 acres in blackberries, 10 acres in strawberries, and 12 acres in raspberries, mainly "The Queen of the Market." He has also several head of Jersey cattle on his place. The adjacent fruit farm of Mr. J. G. Brown, formerly of Pennsylvania, will likewise repay a visit. It consists of 400 acres, of which 200 are laid out in peach trees. Fifty acres are de-

voted to the new raspberry, "The Queen of the Market." This variety is found to be specially adapted to this region of country, and promises to supersede all other varieties. Wyoming is mostly a settlement of Northern farmers.

### The Ross Farm.

From Woodside, large shipments of fruit are made to Western buyers. At Felton, we passed another settlement of Northern families. Bridgeport is also a large shipping point, being the center of an extensive fruit district. A few miles further on, we visited the large farm of Ex-Governor Wm. Ross; it is now managed by his son, Mr. Jas. A. Ross, who, after being educated abroad, has become a practical farmer and fruit-grower. This is one of the model farms of Delaware, numbering over 1,200 acres. It embraces, among other things, 350 acres of peaches, 75 acres of blackberries, 40 acres of pears and apples, 25 acres of strawberries, etc. There is a very fine flock of Cotswold sheep on this farm. At Seaford there are a number of oyster packing houses. After crossing Nanticoke River, which is generally regarded as the dividing line between the peach and small fruit districts, we passed on beyond the Delaware boundary to the quaint old city of Salisbury, Maryland. Proceeding eastward we tarried a short time at Berlin, which is also an interesting old place; in this portion of the Peninsula many of the former large plantations remain undivided. Lemuel Showell (a popular farmer), owns 10,000 acres. His father-in-law, Col. Jacobs, has 15,000 acres. Land ranges in price from $10 to $50 an acre.

### A New Watering Place.

From Berlin, we rode a few miles further eastward to Ocean City, a new watering place on the Atlantic Ocean beach; it was started five years ago, and now embraces five hotels and three boarding houses. After spending the night here, we returned through Berlin to Salisbury, and taking the railroad South, proceeded to Crisfield. Here large numbers of people are engaged in the oyster business, and there are many acres of new land made entirely of oyster shells, extending into the Tangier Sound. On our way, we were shown the farm of Ex. U. S. Senator Dennis, lying near Kingston, and comprising some 1,500 acres. Dr. Dennis is a practical farmer and his broad acres present a very handsome appearance. Close by, is the old Washington Academy, which has educated many of the leading men of the South; the building, however, is now in ruins and is occupied by negroes.

### The Westover Estate.

Leaving Crisfield, we proceeded northward to Westover, on one of the inlets of Tangier Sound in the Chesapeake Bay. The old Westover estate, numbering over 1,000 acres, was, a few years ago, one of the leading plantations of Maryland. After the war it changed hands, and came into the possession of a gentleman from New Jersey. Four years ago Mr. I. N. Mills, the General Agent of the Delaware Division of the Philadelphia, Wilmington and Baltimore Railroad, came down here from Wilmington and bought 350 acres of the last purchaser. This Mills' farm is now under a high state of cultivation, and pays a very handsome investment on the purchase money. The splendid peach and berry crops which it produces shows what can be done by energetic management in this part of the Peninsula. What is now needed for the growth and development of this region is to break up all of these plantations into small farms. Owing to the direct railway communication, fruits and vegetables are quickly transported to New York and Philadelphia, and other northern markets.

### Princess Anne.

Leaving Westover we tarried a short time at the interesting old village of Princess Anne. There is a good deal of wealth in this place, and it figured prominently during the war. The leading citizens with whom we conversed, stated that the outlook for all crops was good, and that they were anxious to have men with northern capital settle among them. Having made the circuit of the Peninsula, we returned to Wilmington, well pleased with the appearance of the country, and convinced that it presents an inviting field for those who would like to engage in the raising of fruits and vegetables. The peach season of Delaware generally continues about forty-five days, beginning usually from the 15th to the 20th of July, or 10 days earlier than in New Jersey. Strawberries, especially the early ones, were somewhat injured, and they are not in so forward a condition as last year at this time. As a whole, however, the peach and berry crops are most promising, and it is computed that there will be close upon 5,000,000 baskets of peaches shipped to market. The railroad company is doing all in its power to assist the owners of the old farms and plantations who are willing to cut up and sell their lands to northern buyers. Mr. J. T. Budd has been placed in charge of this work of encouraging the development of the Peninsula, and can be communicated with at Middletown, Delaware.

## Valuable Dairy Prizes.

The business rivalry of the leading English salt manufacturers, in their endeavors to secure a prominent position in the American market, and the enterprise they show in their efforts to this end, indicate the importance of our market to their trade. While their efforts are made with a view to their own profit, they cannot fail to have an effect upon American Dairy products, as the means taken to bring their salt into notice, by offering premiums to makers of butter and cheese, must incidentally tend to improvement in those articles. We last year noticed the money premiums offered by one house in the salt trade. Another establishment, Messrs. Thomas Higgin & Co., of Cheshire and Liverpool, England, has chosen a different method of calling attention to their salt. Instead of money, they offer medals of gold, silver, and bronze. In doing this, they incidentally call attention to another industry in which this country is not excelled by any other—the manufacture of gold and silver. Instead of sending the medals from abroad, the Messrs. Higgin & Co., have properly recognized the fact that American artizans can produce whatever may be required in this line, and through their representatives in this country, gave an order for the medals to Messrs. Tiffany & Co., of New York, a house with a world-wide reputation. The medals, which we have examined, sustain the reputation of the makers for the production of artistic work. Those only who are familiar with the processes by which medals are produced, are aware of the difficulties attending them. Whether there is to be one medal or a thousand, a *die* has to be *sunk*. A block of steel is made as soft as possible by annealing, and in the smooth surface of this, the design for the medal has to be made, by cutting away and punching away the steel. This requires great skill on the part of the workman, as the whole design has to be *reversed*—what will be upon the medal the highest, or the portion the most raised above the general surface, must be, in the die, sunk the deepest. A glance at a coin—a half-dollar, for example, will make this plain. The eagle and the lettering, which appear raised above the surface on the coin, have, in the die, to be correspondingly below the surface. When the die is perfected, the soft steel is hardened, and is ready then to be used for

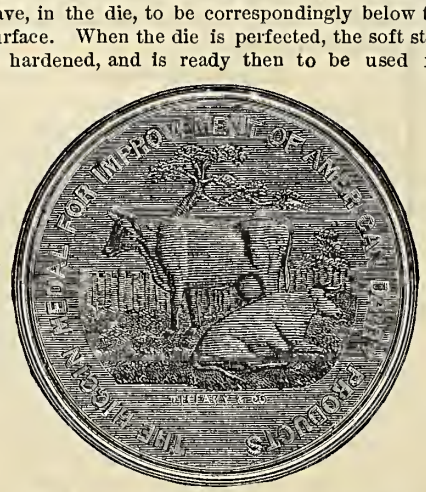


Fig. 1.—THE HIGGIN'S MEDAL—OBVERSE.

stamping the medals. But the medal, like a coin, has two sides, and each requires two dies. When both are ready, they are arranged in a powerful screw press, and a blank of metal of the right size, is placed on the lower die, and the upper one brought down upon it with such force as to squeeze the metal into the depressions of the die, so that when taken out it will show raised upon its surface, that which was below the surface in the die. Whoever has stamped a pat of butter, can understand this. The stamp represents the die, with the design below the surface; the butter—unlike it in every respect save the *golden* yellow—will stand for the metal. Imagine a force as much greater than is used for the butter, as the metal is harder than butter, and no difficulty will be found in understanding how the medals are "struck up." There are 72 of these medals; 24 each in gold, silver, and bronze; the silver and bronze medals are alike in size, the gold medal being perhaps one-fourth smaller. These in sets of three, are to be offered as the first, second, and third prizes for butter and cheese in the principal dairy States. We understand that these will be competed for at the State

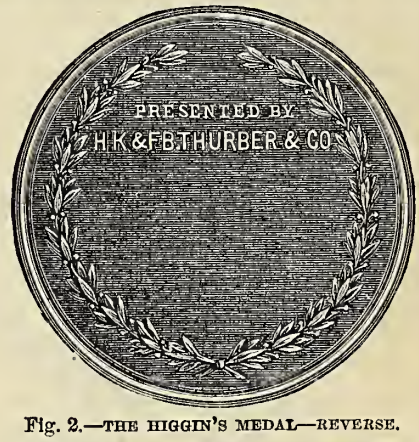



Fig. 2.—THE HIGGIN'S MEDAL—REVERSE.

fairs, and we presume that special notice will be given when the details are fixed upon. To give an idea of these premiums, we present here engravings of both sides of the silver medal. One side represents such a scene as may be noticed on any farm, with two cows in very life-like positions of repose. On the margin is the legend, "The Higgin Medal for the Improvement of American Dairy Products." The reverse of the medal has an encircling olive wreath, with the words: "Presented by H. K. & F. B. Thurber & Co." Below, is a blank space in which is to be engraved the name of the fortunate winner of the medal, and the product for which it was awarded. Such prizes are well worth striving for, and while they are offered in the way of business, their results will be none the less beneficial to our dairy interests, and it is but just to say that Messrs. Higgin & Co. have chosen a method to forward their own interests, which will benefit others as well as themselves.

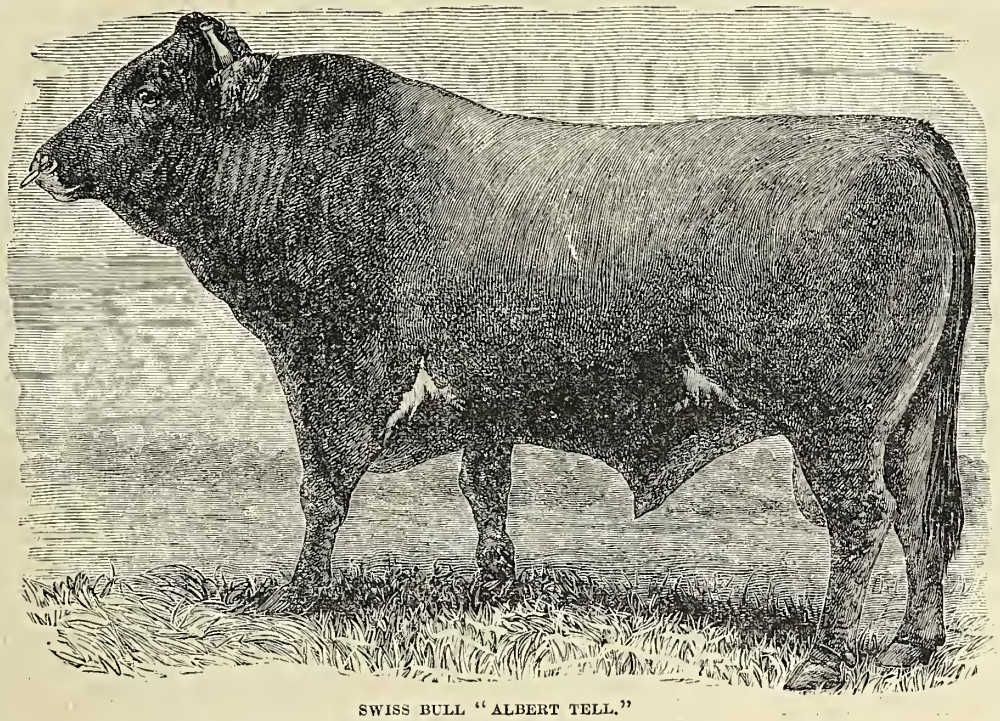
## Pearl Millet—How to Dry.

BY PETER HENDERSON, JERSEY CITY HIGHTS, N. J.

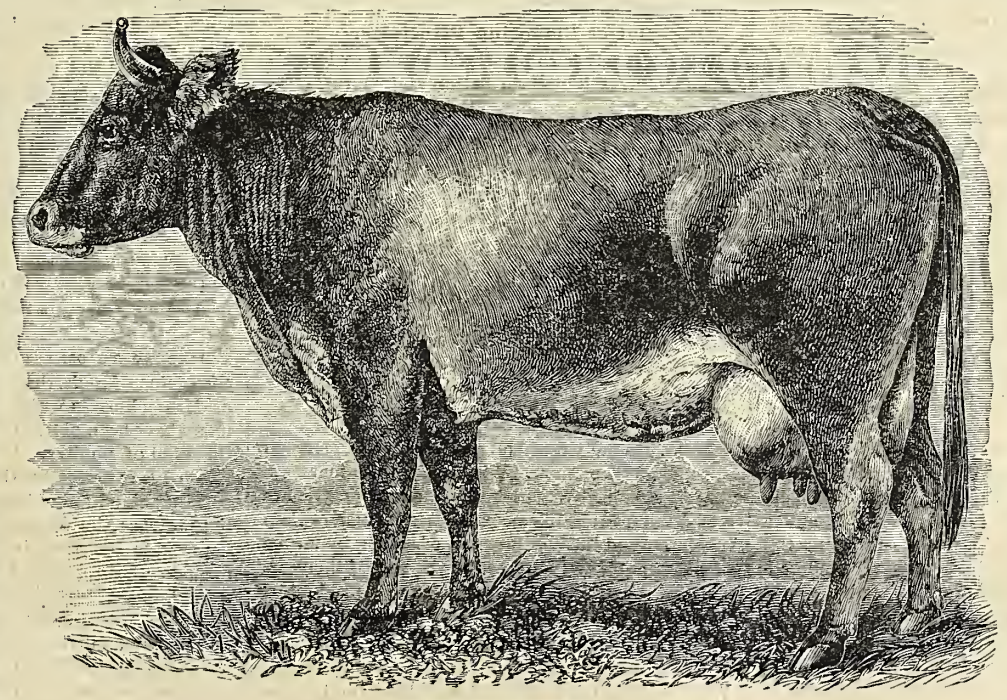
Since I published the result of our experiments with Pearl Millet last season, in your issue of Nov., 1878, I have had scores of letters enquiring the best manner of drying it for "hay." Our crop was sown in a solid block, so that when cut it had to be removed from the land where it grew, and tied in sheaves and hung up on extemporized single rail fences. This plan of course would not answer when grown on a large scale, for the yield is so enormous that such an expedient for drying would be too expensive both for the labor and rails—and as it is too heavy and succulent to be dried like Timothy and Clover on the ground where it is cut, it must be removed, as the attempt to dry it where it grows would destroy the second crop. Circumstances of course must, in a great measure, be the guide, but I would suggest that when grown for the purpose of being dried, that it be sown in beds say 12 feet wide, with alleys of six feet between, on which it may be dried; this would be a loss of one-third of the land for the first crop, but there would be little or no loss in the second crop, for the Millet would spread so as to fill up the alley.

## Swiss Cattle.

Switzerland has long been renowned for its kine, and their product of cheese and butter, and the Swiss herders are noted in poetry and song. The picturesque dwellings, and attire of the herders, their beautifully colored cattle, gaudily decked for the *fête* days, and their pastures in romantic vallies, and upon mountain sides, backed by snow and ice-covered granite peaks, have furnished numberless subjects for the pencil of the painter. To bring these dun or chestnut-colored cows from their peculiar surroundings into strictly practical business relations, where they must stand solely on their own merits as profitable stock for the farmer, would seem to be a hazardous experiment. But it has been done, and with substantial success, by Mr. D. G. Aldrich of Worcester, Mass., who possesses the first, and we believe the only, established herd of this breed in America. By the courtesy of Mr. Aldrich, we are able to give portraits, which are presented on this page, from photographs of a bull and a cow of the Swiss breed. We have now in this country almost every race of valuable cattle that could be procured from abroad, and this breed holds a high position among the best of these, and promises to be an important acquisition to our stock, for use in certain localities. The habits of these cattle have been formed by long association with peculiar natural surroundings; they have been reared and kept for centuries for the dairy, and have been fed upon valley pastures, with comparatively light herbage; from these they have been removed in the summer months, to high mountain sides, where they have grazed among the roughest rocks, at an elevation of 7,000 feet and more above the sea level. As a consequence these cattle have become robust, vigorous, and healthful in constitution, active in movement, and thrifty feeders. They are therefore well adapted to our hilly and mountainous districts, and may readily become naturalized in New England, the eastern mountain districts, and the vast vallies and foot hills of the Rocky, and more western mountain ranges. Probably no other breed is better prepared by natural adaptation to a wider usefulness in America than the Swiss. Having been used to close association with their owners, and almost constant herding in confined and narrow pastures, where the range is very limited, their disposition is unusually gentle, and their docility has become proverbial; the horn of the Swiss herder with which these cows are called home in the evening, and the jingling bells which hang around their necks, to the music of which they march homeward without being driven, have been so often written about, as to be familiar even to those who have not traveled. These features are attractive, but their popularity must, after all, depend upon the question of profit, and the pail and the churn are the real tests. In this respect the Swiss cows have made an excellent record. "Geneva," whose portrait is here presented, has given 30 quarts of milk; averaging, for 12 days, 26¼ quarts daily, and has yielded 3 lbs. of butter in 24 hours milking. This cow was dropped in 1867, and was imported by Mr. Aldrich. A cow, "Bessie," out of "Geneva," has the following record. Yield of milk from Nov. 1, 1877 to Dec. 31, 1878, 10,905 lbs.; yield of butter, for the same time, 573 lbs. She dropped a calf on August 11, 1878, was not dry during the 14 months, and from the 1st to the 13th of August, the milk was not weighed. The feed of this cow was roots, meal, and bran, (quantity not given), in the winter of 1877; grass and fodder corn in the summer of 1878; and hay, roots, and meal in the winter of that year. There are very few cows that can show a better record than this; the owner claims it to be the best well authenticated record in existence. This cow was purchased from Mr Aldrich, by Mr. D. G Roberts, Pittsfield, Mass., in Oct., 1877. The bull, "Albert Tell," whose portrait is given on this page, is out of imported cow "Zuric," and sired in Switzerland. These cattle are large, and, as the engravings show, well formed: in color they are light to dark chestnut-brown: the lighter shade is more particularly manifest in a narrow line along the back, on the inside of the ears, and in the hair between the horns; the horns are short, of smooth texture and tipped with black. The nose is black, and is surrounded by a light colored band; a yellow strip extends from the middle of the lower lip to the upper lip, and up the sides of the nostrils. The switch, hoofs, and tongue, are black; the hind leg is straight, the thighs wide apart, and the hind quarters are heavy. These marks are very persistent in the breed, a fact which denotes the purity and integrity of blood, maintained for a long period; otherwise there would be inevitably, occasional cropping out of variations caused by reversion to irregular ancestry. No other principle of breeding is more certain than this: when a persistence in the reproduction of form, color, and general appearance, is a marked characteristic, it may be taken as an indication, that other, and more valuable qualities will also be permanent. After all the obloquy that has been cast upon the fashion for solid colors in various cattle, the idea has at least this value, viz: that the breed is capable of reproducing a fixed type, and if one element of this is reproduced persistently, it strengthens the probability that others will also be. In this respect, at least, the Swiss breed are strongly constituted, and their hereditary characters are remarkably persistent. The Swiss cattle fatten readily, and reach a weight of 600 to 900 pounds net. These cattle have become distributed among farmers in several localities, and so far as we have heard they have proved satisfactory to their owners. The enterprise of the gentleman who imported the original herd, and that of Mr. Aldrich, who purchased it, are worthy of commendation, and as we can not have too many nor too great a variety of good cattle, it is probable that this first importation may be followed by others, so that the breed may become as generally diffused as it deserves to be. It would be wise and important, however, that importation should be made with judgment and honesty, and that the example of some importers who are more remarkable for their skill in preparing herds for sale, rather than for choosing for merit alone, may be avoided



SWISS BULL "ALBERT TELL."



SWISS COW "GENEVA."

lest harm be done at the outset. There are in Switzerland other kinds of cattle than the one we have illustrated; these are peculiar to different localities; they are more or less modifications of the principal race and of less importance than these.

## Among the Farmers.—No. 41.

BY ONE OF THEM.

### Money-saving Implements.

When money was too plenty, when "greenbacks" were, so to speak, a drug, and used chiefly for speculation, we were paying $2 and $2.50 a day for day-labor, and hardly thought it important to do much to save work, and to lighten other labor than our own. We wanted machinery to take the place of man-power and horse-power, simply because we could not get the men—not because we could not pay them. Now our circumstances are greatly changed. We have more labor than we can pay for ready to be employed at low rates, and yet invention was never more active in devising machinery to take the place of labor, or to cheapen production. That is the great thing—to *cheapen production.* If butter is to bring only 20 cents per pound, we must produce it for half that. If we can calculate on getting only 4½ cents for our pork, 5 to 7 cts. for beef, and similar low rates for other things, we certainly must raise our corn, and other crops at a proportionately less cost than we have been doing, or we shall lose money all the time. The British farmers have been in much the same position for some time, and the general excellence of their implements and their *lasting* character, albeit heavier than we like, show how wisely they economize. Last year the introduction of a convenient

### Reversible Plow Point

was a great stride in the right direction. By it, the labor of the team in plowing is greatly lightened, because the share may be kept sharp and true, and the point itself always well shaped and sharp enough. One share, with several "slips" or points, lasted me all summer, and it seems likely to last a good part of this year, the points being renewed and reversed as often as need be. Ordinarily, we use up three shares, at least, in our gravelly soil; common shares cut away very fast. We do all our plowing—that is, both sward and stubble—with one plow "19½," and an excellent little plow it is....This year the effort is being made to induce farmers to use

### The Sulky Attachment to Plows,

which is applicable to any plow, and affords a seat for the plowman, while he can still have perfect control of both plow and horses. At first sight this seems like labor-saving at a costly rate, namely, at the expense of the team. If I see a hired man add his own weight to a load that is about heavy enough, he learns pretty soon that his place is on the ground. This plow-sulky, however, is a very philosophical affair, not only guiding the plow more accurately than can be done by most plowmen, but making it run lighter, even when carrying the plowman's weight. This seems hardly possible, yet it is clear when we consider that the plow is a three-sided wedge, only one side of which, the mould-board, does any efficient service, the sole and the land side, only contributing to hold the mould-board in position. There is a deal of friction between the sole, or more correctly speaking—the underside of the plow and the ground, and hardly less between the land side and the "land." This sulky attachment to the plow has a wheel under the beam, in front, and one running behind the plow in the furrows, which take *all* this ground friction, and the lateral thrust, made by the single large wheel running upon the land, which is increased when the weight of the plowman is upon the seat, takes a great part of the friction off from the land side. Thus the team is relieved by doing away with useless friction. These two advantages are certainly proved to be all that was anticipated, and perhaps more....Among the *untried* and yet most promising things, as an agricultural help, is

### Ensilage, or the Tanking of Fodder.

This practice on a small scale, in principle, at least, is ancient. I remember seeing in the Bavarian Palatinate, many years ago, and in some parts of Switzerland, also, tanks like tan-vats, conveniently near to the stables, altogether below the surface of the ground, water tight, and covered with substantial lids, which were strong enough to sustain the weight of a man, at least. My recollection of these tanks is, that they were 8 or 10 feet long, and about 5 in width, and perhaps 6 feet deep. I was told that partially dried grass, weeds, leaves, etc., with some grain straw, were packed down as tightly as possible, and allowed to ferment, the fermentation being checked by water, which did not entirely stop it. More fodder was packed in as the mass settled, and finally, the vat was filled with water, and closed down as nearly air-tight as possible.

Here we had all the conditions supposed to be essential to the successful tanking, or *Ensilage*, of Fodder, as practised by Mr. Goffart, in France, or Colonel Morris in Maryland, besides the additional security of the water, which, in the case of tanking corn fodder, cut up when green and juicy, would rarely ever be necessary, if at all.

The process, and the tanks or *silos*, have been so well described in the *American Agriculturist* that all its readers must know in general about them. The present season will afford to the skeptical, and to the "old fogies," abundant demonstration of the usefulness and profit of the practice. The use of tanked green fodder will enable us to make milk and butter as profitably at one season as at another. It will probably enable us to save one-third of the cost of fattening beef in winter. The effect of a moderate quantity of green feed in both milk and beef production, is well known. This gives roots their value as winter feed—making grain go much farther than it otherwise would. Roots are a form of green fodder, in which a small percentage of nutritive matter is combined with an enormous quantity of water. In the tanked fodder (call it "ensilaged fodder" if you will), we have a larger percentage of nutritive matter which has undergone a partial cooking process, thus enhancing its digestibility, and which has not destroyed the coloring and flavoring qualities of the fodder. The fact, if substantiated, that it may be so preserved as to

### Impart Color to Butter,

makes the practice a very attractive one to gilt-edged butter makers. How far this has been tested I do not know, but it is certain that the *chlorophyll*, the constituent of grass, and green fodder generally, which imparts color to butter—is not destroyed by the tanking process.

### Butter Flavoring Principles.

Whenever hay is so preserved as not to lose its green color, it imparts a better and more grassy flavor, as well as a higher color, to butter. This is accomplished by cutting very young and storing without thorough drying. I have seen clover-hay, or rather clover not half cured, stacked up between layers of cut straw, which opened out in February and March as fresh, sweet, and green, as if it had been cut but a day or two before, the blossoms retaining their looks and fragrance. It is important to know if, with the slight modification of color which the tanked fodder undergoes, it may not also be true that those equally fugitive qualities which give flavor to butter may not also be preserved.

### Soiling in Summer and Tanked Food in Winter

will be productive of the best crop a farmer can raise, namely, manure. Whatever system increases that, is a boon. We all know that when cattle are soiled the manure pile grows faster in summer than in winter, and the continuation of soiling by means of the tanking system through the rest of the year, will give both bulk and value to this product of the farm upon which every thing else depends.

### The Lung Murrain.

We reduce every thing to science now-a-days. What used to be called Lung Murrain is now *Pleuro-pneumonia bovina*—a startling name, to be sure, but none too much so. Lung Murrain is a disease both infectious and contagious in a high degree, affecting neat cattle only; it is often very fatal, and although not at once destroying the usefulness of the animal, and causing little alarm, gradually, though sometimes rapidly, renders useless a portion of the lungs. The part of the lungs thus affected is, in the cases which recover, encysted, and shut off from the rest of the system. It may remain so, as I understand it, a long time, but whenever the animal gets a severe cold, lung fever or anything of the kind, the disease will break out again, to such an extent, at least, that it may be communicated to other cattle in the same stable or pasture, or even in adjacent fields. This is what makes the disease so hard to manage—it is this that makes a rigid quarantine of infected herds, and the ultimate slaughter of every exposed animal, the only safe course. The existence of this malady in the "swill milk stables" of the vicinity of New York, has long been known, and the danger to the agricultural community, often pointed out by the agricultural press. So long as it was only the farmers who were hurt, or likely to be, no body cared, but the moment the mercantile interests, shippers and ship owners, and the "cattle trade," the railroads and all concerned in the traffic in cattle, were affected, the whole country was aroused, the States of New York and New Jersey, and the General Government, all took prompt action, and are doing no half-way work, so far as I can see. Certainly, New Jersey has a well organized, prompt, and kind force of inspectors and officers. They respond quickly to any calls made upon them, their examinations are very thorough, and they maintain rigid quarantine wherever necessary. They have killed but very few cattle so far, and put cattle-owners to just as little expense and trouble as is consistent with the safety of the herds of others.

### The Murrain has been Spread

chiefly by cattle dealers, in bringing cheap cows from the city and its vicinity into the country. These cows may have been sold cheap, just because they were known to have the disease; or to have been exposed to it, or possibly they may have been sold innocently. It would continue to spread thus were it not for the vigilance of the inspectors. My own farm is only six or eight miles from the nearest point where the disease is known to be, and I feel that the only security I have, is in interesting my neighbors to absolutely prohibit all driving of cattle along the roads, and to prevent wandering cattle from pasturing in the woods which are unfenced. This is the only way in which neighbors can protect themselves. Cattle having the Murrain in its first inception, if in good condition, may be properly killed. The beef is not affected, and neither is the milk. The disease is entirely confined to the lungs until it is considerably advanced. During this period the animal can hardly be termed *sick;* it will cough a little, but eats well; is clear-eyed, and shows no other sign of disease. I believe the doctors do not consider that there is danger of spreading the disease through marketing such beef and milk. This is fortunate, if true, for many of the sick cows are in the hands of very untrusty people, who will sell the milk and market the beef to the last minute. I hope the Inspectors will be vigilant in this respect, for the present season's work must be the last, or there will be little hope of thoroughly stamping out of the disease.

**Disease among Turkeys.**—A correspondent complains of a diarrhœa among turkeys in his part of Massachusetts which prevails so generally, that many have been obliged to give up the raising of this kind of poultry. He says: "The symptoms which I first notice are these: The appetite falters and they stand around moping only a little at first, but more as the disease advances. From 3 to 5 days after the first indications a diarrhœa commences, the appetite fails, and they sit on the ground in the coldest place they can find. They gradually waste away and die in about 10 days. Sulphur and a little saltpetre will sometimes check the diarrhœa, but does not remove the cause. It is very rare that one is saved by any treatment, and if left alone they invariably die. The young ones are attacked from 6 to 8 weeks old, until they are grown up. On examination the disease seems to be in the intestines, on the part between the gizzard and vent. The diseased parts are very much swollen and inflamed, very tender, nearly decayed, and smelling badly. The liver is 2 or 3 times the usual size, and the gall very large." We should be glad

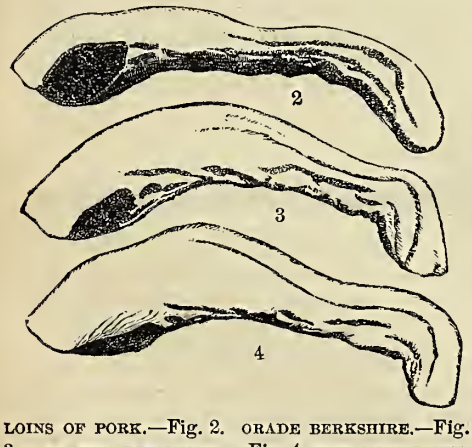
to hear from any of our breeders who are acquainted with this disease and know of a remedy.

## Over Fattened Meat.

It is possible that breeders and feeders of beef, mutton, and pork, are not aware of the enormous waste which occurs in the consumption of their products. Of late the tendency has been to produce so-called improved animals which are bred for early maturity, and are inclined to an excessive deposition of fat. Fat is not the most valuable part of the meat; a certain proportion, intimately mingled with the lean, in a manner known as "marbling," is desirable, and tends to make the flesh tender, juicy, and digestible. But when the meat consists of a small portion of lean, surrounded

Fig. 1.—LOIN OF OVER-FATTENED BEEF.

by enormous layers of fat, it is neither agreeable nor healthful food, nor is it economical in use. So long as such meat as this is purchased, though at a great loss, by the consumers, breeders will produce such cattle; but it is not a fact that consumers desire such meat, or patiently suffer such waste to be inflicted upon them. The patience of the American citizen is well nigh inexhaustible; he submits to that of which he disapproves without more than a murmur, because he dislikes the trouble that would grow out of a remonstrance. But the English consumer is proverbially a grumbler, even when he is well served, and he is now complaining that he is getting too much useless fat with his meat. As we have followed the English fashion in stock breeding, and have bought largely of their improved breeds at enormous prices, so we are already producing meat such as theirs, to which English consumers object as wasteful; and we may well take a lesson from our neighbors in this matter. The "Agricultural Gazette" (England) has recently instructed its readers in this respect by producing copies of photographs of joints of meat from ordinary good, and highly improved animals. One of these, fig. 1, is an illustration of a piece of




LOINS OF PORK.—Fig. 2. ORADE BERKSHIRE.—Fig. 3. IMPROVED BERKSHIRE.—Fig. 4. IMPROVED ESSEX.

a loin of beef from a highly bred Shorthorn. It is seen that the lean, shown by the dark shading, is very small; and is surrounded by an enormous quantity of fat, which seriously diminishes the value of the meat for the consumption of any one but an Esquimaux or a traveller in the polar regions. Figures 2, 3, and 4, respectively, illustrate cuts from the loin of pork; the first being from a grade Berkshire pig, the side of which weighed 68 lbs. This may be taken as an excellent sample of pork or bacon; the second is a cut from a side, weighing 74 lbs., of an improved Berkshire, which had the generally desired and fashionable qualities (among breeders) of shortness, roundness, and thickness. The improvement in this case consists in substituting fat for meat. The third is a cut from an improved Essex pig, which is seen to be nearly all fat. The side from which this last was taken weighed 70 lbs., and the lean in it was reduced as low as is perhaps possible, and yet to give the animal sufficient muscular power to carry its load of fat. Figure 5 represents a cut from a Red Jersey ham taken from a 10 months' old pig which weighed 280 lbs. When cut up for use, this pork had so little lean as to be uneatable, and of the 280 pounds gross weight, 263 lbs. was rendered into lard, only 17 lbs. of lean meat being saved for use, and this was intermingled with sufficient fat to cook itself in the pan. The comparison between a Berkshire or other pig, in which the sides are deep and the lean is in fair proportion with the fat, and a pig of the fashionable roundness and shortness in which the lean exists in such remarkably small proportion, is very great, and suggests the question, if we have not gone as far in growing fat as may be profitable, and if it would not be desirable to cater more for the economical consumer of meat than for the tallow or lard-rendering kettles.

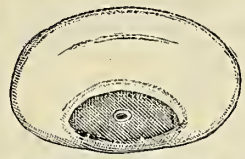


Fig. 5.—JERSEY RED HAM.

## Plowing with the Swivel Plow.

Notwithstanding many attempts, which have been more or less successful, to improve the swivel plow, this useful implement is still far from satisfactory. The chief objects sought in improving this plow have been, the smooth turning of the furrow slice, and the perfect clearing of the mould-board. Whether or not these can be secured in any reversible plow, is still a question. A certain form of plow is absolutely necessary, and a form, too, which is unfavorable to the objects sought. Nevertheless, there are many patterns of these plows which do passably good work; and the great advantage of being able to reverse the plow, and work back and forth in consecutive furrows, instead of plowing in lands, renders some form of swivel plow very desirable, especially in preparing for corn or for fodder crops. For these purposes the swivel plow is almost indispensable. In plowing for corn, the planting may go on with the plowing and harrowing; the ground that is plowed to-day may be harrowed and planted to-morrow. To plant upon the fresh, mellow soil, is an obvious advantage, and it also helps much in the forwarding of the work. The swivel plow is a great convenience when crops are grown for soiling purposes. If the fodder is cut, either by the scythe or the mowing machine, in narrow strips, across or along the field, the plow can follow from day to day, and the ground may be re-sown at once, without waiting for enough to be cleared to make a "land," and it will not be cut up with frequent back and open furrows, but be kept smooth and level.

The action of a plow with a clogged mould-board is not always objectionable. In using an old-fashioned swivel plow, we find the effects of the clogging to be such a mellowing of the soil and such a smooth laying of the surface, that the seed may be sown or drilled-in without any use of the harrow. When the plow scours, and the mould-board is kept free, it is only by a packing or pressing of the furrow-slice by which it is made comparatively solid; and before it can be sown or planted, the ground must be harrowed. While the swivel plow as now constructed may not be exactly suited, as yet, for its work, nevertheless it is an implement that could be used with advantage in a much larger variety of work than it now is.

**Large and Small Cows.**—The desire for large animals is not always judicious. With cows it is questionable if the largest are the best, when the cost of feeding is considered. There are cases in which a dairyman's fancy for large showy animals may be justified, and it may be granted that a stable well filled with large, showy Dutch, or Shorthorn cows, is a very pleasing exhibition. But when we come to figure up the cost of the product, it may be a question if the same amount of food were expended upon an equally good looking herd of Ayrshires, the milk might not be more cheaply produced. Where the final end of the cow is considered, and the amount of beef is an object, that of course alters the bearings of the question. But bigness in cows is not always best either for beauty or profit to the owner. The same remark will apply to horses.

## How to Lay Out and Shape an Ox Yoke.

O. H. Leavitt, Androscoggin Co., Me., sends the following method of laying out and making an ox yoke. Every ox owner or driver knows, or should know, that upon the shape of the yoke and the fitting of the bows depend much of the ease and effectiveness of the working of the cattle. Mr. Leavitt's method is as follows: Elm of the toughest kind is the first choice for timber. For oxen of 7 feet girth, or 3,000 lbs. to the pair, the stick should be 6 feet long and 12 inches in diameter. The side of the log that will be the top of the yoke is hewed, and marked at the center, and 15 inches from the center each way for a 2-inch bow hole, and 12 inches further from the center for the second bow holes. A chalk line is snapped lengthwise in the center of the timber, and where it is intersected by the former marks the bow holes are bored. These holes must be bored exactly perpendicular and true, and one will be better able to do this by standing over his work, and after the auger is started, to step aside and notice if it is straight in every direction. Care should be taken to have the log level. The yoke is then marked 4 inches thick at the center where the band for the draft ring comes; 10 inches thick midway between the bow holes; and 6 at inches

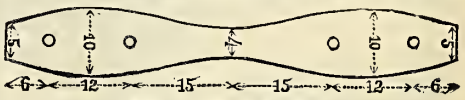



Fig. 1.—TOP OF YOKE.

from the outer holes, 5 inches thick for the ends, measuring these distances so that the chalk line is in the middle. These marks are then connected by a regularly curved line, and the outline of the top of the yoke is made as at fig. 1. Then lay the stick on the side and mark out the hollows for the neck 3 inches thick at the center between the bows, and 4½ at the end, as at fig. 2. The center is hollowed 3 inches from the straight line at *A*. The position of the staple and ring depends upon the work for which the yoke is to be used; for drawing a wagon or cart, the ring should hang low; for plowing, the yoke should not be so deep on the under side, and

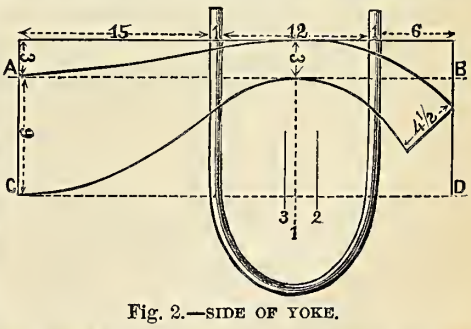



Fig. 2.—SIDE OF YOKE.

the ring should hang high. The hollow for the neck should be marked out by drawing the line, 1 (fig. 2), in the center between the bow holes down to the lower edge of the yoke; the line 2, one inch nearer the end, and the line 3, half an inch the other way from the line 1. The line *A*, *B*, is 3 inches from the top. A pair of dividers is set as wide as the bows, and with one foot at 1, a curve is marked towards the staple for the under side of the hollow; then move to point 3, and make the curve for the under side towards the end. Then from the point 2 make the curve from the top of the yoke to the end for the upper side. The bows are shaped as shown in fig. 2, 10 inches between the insides on the line of the holes; 9 inches at the

line *C D*, which is 8 inches above the inside bottom of the bows and at the point of the shoulder; and the length of the bow from the line *A, B*, to the inside of the bottom bend, to *C*, is 18 inches. To finish the yoke when made of green timber, build a fire out-of-doors, plug up the bow holes with potatoes or something else that is green; lay the yoke on the fire, and when it is hot and begins to crack on the cross-grained places, remove it and rub in grease or oil, until the wood will absorb no more. Repeat this until the yoke is evenly charred all over a sixteenth of an inch deep, when it should be scraped and greased again while hot, and rubbed with rags until no black will come off, when there will be left a black polished surface with a handsome finish that will not fade or soak water.

## Bog-Spavin and its Treatment.

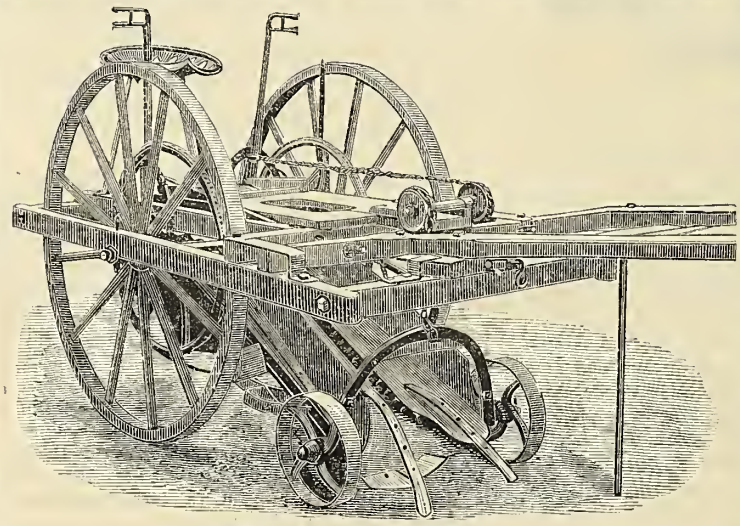
The disease known as "Bog-Spavin," and a form of the same known as "Thoroughpin," are of frequent occurrence. The fact that lameness sometimes attends the swelling—the visible symptom of the disease—and sometimes does not, leads to a confusion of ideas upon this subject. This may be easily explained as follows: Bog-Spavin is of two kinds, both of which present the same outward appearance, so far as the puffy swelling is concerned, but they differ in the important point that in one there is inflammation, tenderness and lameness, while in the other there are none of these, and only an inconvenient blemish results. It is necessary, therefore, to distinguish between these two forms. The more serious is that caused by inflammation of the hock joint; this may occur from over-work, rheumatism, sprains, or bruises. There is a soft swelling on the inner, fore, upper part of the joint, where there should naturally be a hollow. Sometimes the swelling occurs upon both sides of the joint, and on pressure upon either side the swelling is pushed through the joint, and increases upon the opposite side, fluctuating back again when the pressure is removed. This is "thorough" or "through" pin, the former word having been, years ago, used synonomously with the latter. The lameness in this form of the disease is similar to that from Bone-Spavin, and in its result it may produce the worst effects of that disease, viz., ulceration and bony deposit, with a permanently stiff joint. The less serious form of the disease is a simple swelling, which appears to be the same as the other form in all respects, excepting that there are no lameness, heat, or tenderness. The cause is an excessive secretion of synovial fluid (the fluid which lubricates the joint), which produces the soft, puffy characteristic swellings; and this may occur from over exertion, or a dropsical effusion from constitutional weakness.

PAD AND BANDAGE.

The first treatment, in the former case, is to reduce the inflammation, and exert an easy pressure upon the swelling, to induce an absorption of its contents. In the latter case, the pressure, with cold applications, are sufficient. These, in both cases, may be accomplished by using a padded bandage in the manner shown in the engraving. This may be made by any person, in a few minutes, from some strips of stout leather, a few rivets, and two buckles. The pads may be made of pieces of sponge, wrapped in wash-leather or buckskin, or sheet-rubber. The upper strap is buckled loosely around the leg, above the hock, to prevent the bandage from slipping down, as it is held by the side straps. The lower strap is provided with a pad, or one for each side, placed so as to exert a steady pressure upon the swollen parts. At the same time, cold water dressings are applied, or astringent applications, such as weak mixture of tannic acid and water, or an infusion of white-oak bark. The lotions may be made more effective, as regards coldness, by the addition of ice or a small quantity of saltpeter to the water. Rest is necessary during treatment, and unless the causes that produced the trouble are afterwards avoided, it will be necessary to soon repeat the application.

## A Bean-Pulling Machine.

The success of the bean crop largely depends upon the proper harvesting; indeed, this is the most important labor connected with the crop, as it must be done neither too early nor too late. No doubt that many a grower of beans has wished for some mechanical aid in the tedious task of pulling the plants. Mr. H. B. Morrison, of Genesee Co., N. Y., wished this, and began some time ago to embody his thoughts in a machine, which, after various modifications, he has brought to such perfection as to warrant him in applying for a patent for it. The engraving, from a photograph, shows the exterior of the Bean-Puller as it now appears. The machine is simply constructed. It consists of the



A BEAN HARVESTING MACHINE.

driving wheels which run on each side of the row, a pair of shafts in which the horse travels on one side of the row, so as to avoid trampling on the beans. The adjustable frame of the machine is hinged to the axle, the pullers being attached by their hinder ends to the front end, resting on two small wheels at the front; the extended gathering fingers taking up the plants or "bushes" from the ground, and conveying them to and between the front ends of the central space of the frame, while the extended share loosens the roots so that the plants are taken up the inclined plane and dropped to the rear in rows. The shafts are so arranged that the driver can direct the draft and guide the pullers along the rows, following any deviation from a straight line that may have been made in planting.

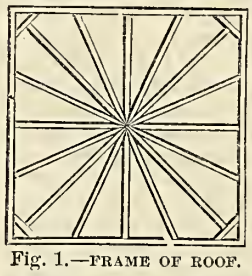


Fig. 1.—FRAME OF ROOF.

Fig. 2.—ROOF READY FOR THATCHING.

The pullers may be raised or lowered, or thrown in and out of gear by the driver without leaving his seat or stopping the horse. One great advantage of the machine is that the beans need not be pulled until they are nearly cured, without being shelled and lost, while they are freed from earth, and damage by soiling is prevented. Machines for pulling two rows at once can be made. It is unnecessary to describe further the advantages resulting from the use of the bean-puller; these will be obvious to the practical bean-grower.

## Cheap and Easily Made Barracks.

Some time ago we gave directions for building barracks for hay or grain, which were too costly for those without some money at command to purchase the materials. A plan is here given for making these conveniences, with materials that need not cost one dollar, and which may be built by any one having an ordinary amount of skill. Four poles, 20 feet long, are set in the ground, 16 feet apart, about 4 feet deep. These poles should be of durable timber; the part set in the ground is to be left of the natural size, being denuded only of the bark, and the remainder may be hewed down to a neatly tapering form. Holes are bored in these poles, and pins of wood or iron inserted, to hold up the roof. The frame of the roof is made of 4 sills, halved and pinned together at the corners, and having a short cross piece pinned at each corner, 18 inches from the end, as may be seen in figure 1. Light poles for rafters are then fitted into the cross pieces, into 2 inch holes, the part inserted in the timbers being pinned fast with half inch pins. Similar poles are fitted into the sills, in the same way, and may be gathered together at the top, as shown at fig. 2, and secured by an iron band, or may be bound together by fence wire. Some cross strips of flattened poles or split hoop-pole stuff, are then pinned with half-inch pins, or bound to the rafters, with hickory or white oak withes, softened and toughened in a fire. The frame is then thatched with straw or bog-hay, in the manner described in the *American Agriculturist* for July, 1874, p. 257. The result, seen in fig. 3, is a stiff, substantial structure, which will hold 8 to

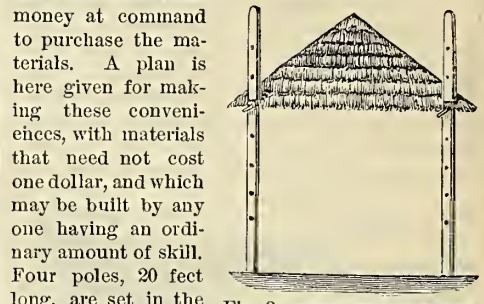


Fig. 3. BARRACK COMPLETE.

Fig. 4.—LEVER FOR RAISING ROOF.

10 tons of hay or sheaf-grain, and preserve it as well as if it were in the most costly barn. In filling a barrack of this kind, the hay may be built out 2 feet each way wider than the roof, making the stack 20 feet square, up to near the top, when it may be gradually drawn in, and raked down from top to bottom, the loose hay being thrown upon the top. The roof is then let down upon the hay, which is thus completely protected from the weather. The roof is raised or lowered by means of the lever shown at fig. 4; this is rested upon a pin placed in a hole in the post, and the pivoted end is placed under the corner of the roof, which is raised by depressing the handle of the lever.

**Roots.**—A small piece of ground not otherwise occupied, may very profitably be used for roots. It is an easy matter, now that artificial fertilizers can be so readily procured for this crop, to put in an acre or so. Sugar beets may be sown in June, Ruta-

bagas, in June or July, and turnips, in July or August, and no other crop which can be grown, gives better returns for the labor and trouble than roots.

## Making Split and Shaved Shingles.

It is difficult to point out a roofing material better, on the whole, than well made shingles. If well made, well laid, and properly prepared for use, they may last a lifetime, which is as much as can reasonably be expected of any roofing. Shingles may be made of any timber that splits well and will not curl up after repeated wetting and drying. Pine, cypress, and cedar, are the best materials for shingles; chestnut, oak, ash, hemlock, and other woods, may be used when the former can not be procured. The first step in making shingles is, to saw the timber into blocks of the proper length—14, 16, 18, or 24 inches, as the case may be. The block is then split into segments, as shown in fig. 1, by means of a tool known as a frow (fig. 2), and a

Fig. 1. BLOCK.

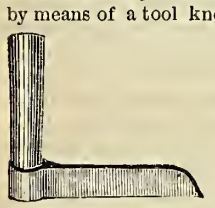


Fig. 2.—FROW.

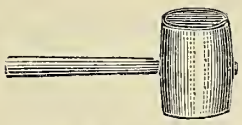
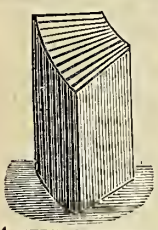


Fig. 3.—MALLET.

mallet (fig. 3). The blocks are freed from the sap wood and the heart, and are then split down the sides in the manner marked at fig. 4, into shakes (fig. 5). The shakes are then held in a shaving-horse (fig. 6), and by means of a drawing-knife, figure 7, shaved down to a sharp edge at one end, and smoothed at the sides, when they are finished shingles (fig. 8). It is important to have the original blocks sawed true and square at each end, else the shingles will be imperfect, and the butts, which are exposed on the roof, lie irregularly. When finished, the shingles are put up in bunches of 250, or 400, each—that is, of so many nominal, not actual, shingles; a shingle being held to be only 4 inches wide. So that one 8 inches wide, counts as two, and one 6 inches wide, counts as one and a half. Thus, a bunch of 25 courses (on each side) with a 20-inch band, will have 1,000 running inches of shingle, equal to 250 shingles; or a 32-inch band with 25 courses will contain 400 shingles. The manner of packing shingles, and the press used making the bunches, is shown in figure 9. There are several kinds of shingle-machines which saw them out of the blocks, and by using these, the shingles may be made of timber which will not split, even cross-grained timber, or that with knots, if these are tight, may be used. A sawed shingle roof lies closer than one of split shingles, but as there is a fuzzy surface left by the saw, they soak more water, dry more slowly, and are less durable than the other.



4. SPLIT SEGMENT.

5. SHAKE.

## The Care of Young Turkeys.

It is a joyful morning to the farmer when he discovers his first brood of young turkeys following the cautious tread, and the low cluck of the mother, as she leaves her nest. The critical season of turkey raising is now before him. Upon his constant care and watchfulness for the next three or four weeks depends his success and his profits. It is a matter of the first importance that the care of the young broods should be committed to some one individual. There is no substitute for personal responsibility in carrying the young chicks through their first month. They are very tender, and they have many enemies from the start. The mother bird has wise instincts, to guard her brood against harm in a state of nature, but in domestication, she needs close watching to guard them against birds and beasts of prey, against roaming for food too early in the morning, and especially against storms. If the farmer can not attend to this himself, he should put the care upon some one else, who will look after the broods at short intervals during the day, and see them properly sheltered for the night. Women who have a fondness for the work, make the best guardians of the young broods. Each little flock should be counted every night, as they come to their roost, and if any are missing, they should be looked after. They can be controlled in their wanderings, at first, by frequent feeding. Like all other birds, they follow the feed very strictly, and will not wander very far from food that is regularly and bountifully supplied. On most farms where turkeys have been raised for many years, the insects are kept down by these ravenous birds, and there is a dearth of animal food, especially in the early part of the season. This must be supplied in some form very soon after the young turkeys begin to eat. On dairy farms, the most convenient supply is buttermilk, or sour milk and curds, which generally go to the pig-stye. Coarse ground Indian meal, mixed with milk, makes an excellent food for the young birds, of which they never seem to tire. One of the most successful turkey raisers in the circle of our acquaintance, keeps a supply of Indian meal and milk always within reach of the young turkeys. His success is almost uniform, and the two hundred or more heavy Naragansetts that roost upon his poles at Thanksgiving, are good evidence of the wisdom of his feeding. After the first month is passed, and the broods are trained to come home at night, they may be driven farther from the house, and have some liberty. Yet they should be looked after toward nightfall, and the flock be regularly counted, until the season closes. The price of large flocks of large and well fattened turkeys is constant vigilance from May to November.

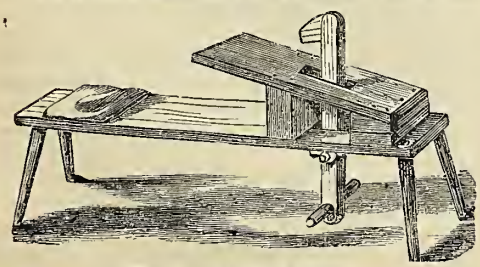


Fig. 6.—SHAVING HORSE.

7.—DRAWING KNIFE.

Fig. 8.

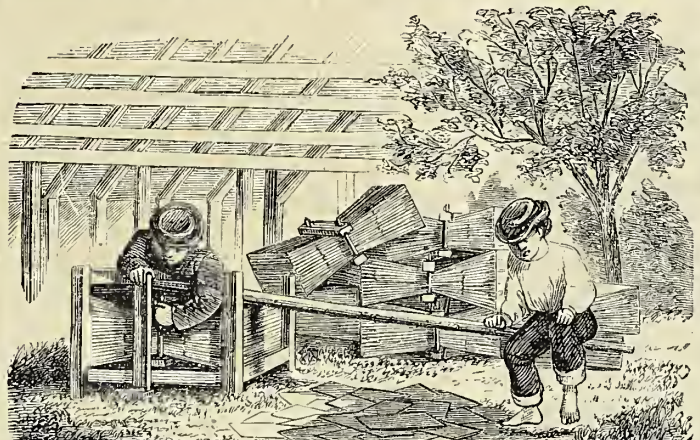


Fig. 9.—PRESSING AND PACKING SHINGLES.

**Clean Cultivation.**—If any one doubts that the mellowing or loosening of the surface of the ground is of use to moisten it in warm, dry weather, he will hardly doubt that this operation will effect the destruction of weeds. And this work is the most important of the year. It is a principle in physics, that two things cannot occupy the same space, at the same time, and it is equally true, that two plants cannot subsist upon the same food.

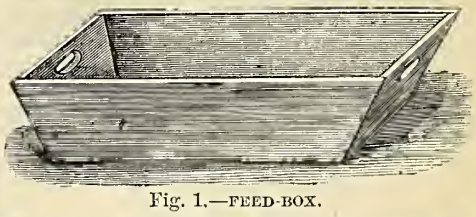


Fig. 1.—FEED-BOX.

Weeds rob the crop, and to destroy the robbers, is a work that lasts through the entire season. The earlier it is done, the less it costs.

## Hints and Helps for Farmers.

FEED-BOXES, made as shown in figure 1, are convenient either for the cattle to feed from,

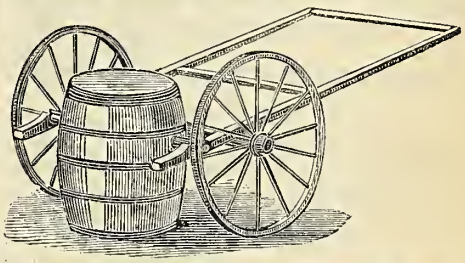


Fig. 2.—PORTABLE BARREL AND FEED TRUCK.

or for carrying the feed to them. These are made of ⅞ pine lumber, with flaring sides, 24 inches long, 14 inches wide, and about 8 or 9 inches deep, and holes are made in the ends, to serve as handles, as shown in the engraving. These boxes are more durable than baskets, and cost much less.

A PORTABLE BARREL AND FEED TRUCK.—A subscriber at Albion, Iowa, kindly sends a sketch of a portable barrel for slops, feed, etc., and a truck upon which it may be transported. The truck, shown at fig. 2, has side bars extending beyond the axle to the rear, which are notched so as to receive the arms which are attached to the barrel. The bars of the truck are depressed to catch the arms of the barrel; when the load may be raised and moved off, (see fig. 3). To this, we add a portable box for moving feed in a stable. This box is shown at fig. 4. It has flaring ends, and the sides are brought down 3 inches below the bottom, in such a manner that when it is placed upon the bed of the truck, it

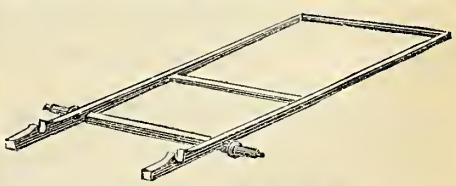


Fig. 3.—BARS OF TRUCK.

rests upon the axle and side bars; the former fitting into the slots in the sides, and the latter fitting inside of the side pieces, by which it is held securely. This will be found useful in feeding cows in a stable, to carry the food from the feed room along the front of the stalls. It will also be found useful in the garden, and about the place for many purposes. The box can be removed, when the truck will be serviceable in many other ways.

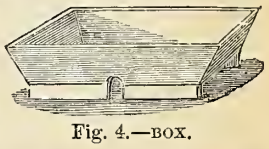


Fig. 4.—BOX.

A CHEAP YARD-GATE.—The writer recently made

a gate for a barn-yard as follows: Three fenee strips were bolted together by three pairs of upright pieces, these being placed on each side of the strips, as shown in fig. 5. The end strips are made 7 feet long, and a long bracе, which is another fence strip, is bolted diagonally across the gate, from the top of the head strips to the bottom of the foot strips. This prevents any sagging. The hinges are bolted to the gate, as seen in the engraving, a short pieee being fastened from the heel

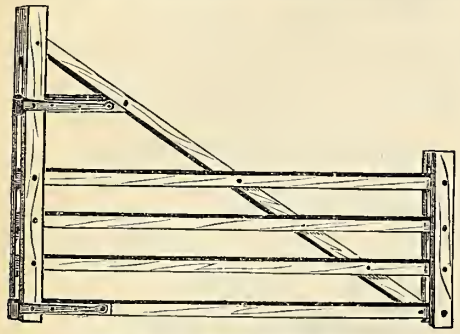


Fig. 5.—A CHEAP YARD GATE.

pieces to the brace for the upper hinge. A gate 12 feet long requires 7 fence strips, 11 3½-in. carriage bolts, 5 2½-in., and 1 4-in. bolt, and 2 pairs of hinges. The latch is a common slide-latch of wood, which fastens into a mortise ent into the post.

DISCIPLINE FOR A KICKING HORSE.—The method (illustrated in figure 6) of curing the habit of kicking in the stable, so frequent with nervous horses, is given, with the accompanying sketeh, by a German subscriber. It is to hang in a proper position, be-

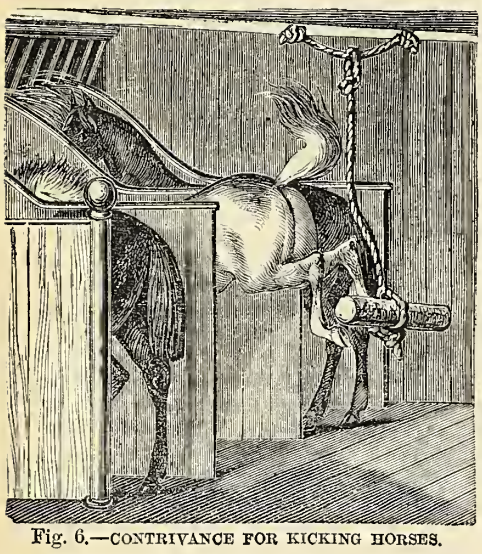


Fig. 6.—CONTRIVANCE FOR KICKING HORSES.

hind the horse, a log of wood, by means of a rope fastened to the beam. When the horse kicks, the log is struck, and that swings back against him, with sufficient force to suggest that his kick is always returned. This lesson is soon learned by him and becomes effective. When not in use, the log is hung up out of the way by a hook upon the beam.

## Fish Culture—Its Success Established.

The Thirteenth Report of the Fish Commissioners of the State of Connecticut, presented at the recent session of the Legislature, established beyond reasonable doubt the possibilities of entire success in re-stocking the rivers of the State with shad, salmon, and other migratory fish. It has been known since 1870, when the remarkable increase of shad, as the result of the artificial hatching at Hadley Falls, appeared in the Connecticut River, that the plans of the Commissioners for the reproduction of this fish were entirely successful. There has been a large increase of the catch of shad in the "pounds," at the mouth of the river, and in the sweep-nets and gill-nets at the fishing stations up the river. Shad have been made so plenty at some of these stations, that in the hight of the season, fine fish have been sold at ten cents (10 eents) each. This increase has been so steady, in response to the artificial hatching at Hadley Falls, that there is no room for doubt among intelligent observers. It is not so generally known that the most persistent enemies of fish culture, and of the legislation necessary to its suecess, have been found among the fishermen, especially those at the mouth of the river. Their pound-nets, extending ten miles west of the mouth of the river, and running a mile or more into the sound, caught by far the larger portion of the shad hatehed in the river. This lion's share of the profits of the fishery was altogether too profitable to be given up without a struggle, and it is not until the views of the pound-men can be made to harmonize with the interests of the river fishermen in Massachusetts, Vermont, and New Hampshire, that the shad hatching, suspended for the last three years at Hadley Falls, can be restored. The possibilities of entire suceess are demonstrated, if Connecticut will legislate to proteet the fish, and the people will enforce the laws. Mueh more solicitude has been felt about the restoration of salmon in the Connecticut than in the case of shad, although in the early days the salmon was the cheaper and the more abundant fish. Occasional plantings, in small numbers, of young salmon in the tributaries of the Connecticut had been made previously, but it was not until 1874 that an adequate supply was furnished. In that year, Conncetieut, Massachusetts, Vermont, and New Hampshire, planted nearly 1,200,000 young salmon in the various brooks that feed the river. Previous to last year, only a few adult salmon, the results of the earlier plantings, had been seen in the river. About the last of April, 1878, salmon began to be taken in the pounds at the mouth of the river, and later in sweep-nets and gill-nets, all the way up to Hadley Falls. As many as 500 were taken in the course of the season, the average weight being about 12 pounds. Unfortunately, the law proteeting salmon, and punishing their eapture by heavy penalties, had been repealed by the Legislature, and the first fruits of the labors of the Commissioners were sacrificed to the greed of the fishermen. They were sent mostly to the New York market, and were reported to be of the best quality. By far the larger part were males, and the loss is not so great as it would have been a year later, when the females make their appearanee to deposit their spawn. They appeared in considerable numbers at the fish-way at Hadley Falls, and, although striet watch was kept, it is not known that any of them passed through. The proposed increase of the volume of water in the fish-way, it is expected, will make it available for the salmon another season. As a demonstration of the theory of our fish culturists, that salmon will return to the streams in which they are bred, and that barren rivers can be economically re-stocked, the labors of the Fish Commissioners are a complete success. The needed legislation must follow in due time. The success here should encourage similar efforts elsewhere, as all our rivers may be made to afford an abundanee of the choicest fish. CONNECTICUT.

**American Provisions in England.**—An English paper relates a characteristic business enterprise of the dealers in American provisions in that country, and an instance of the extreme prejudiee against our products which exists there. American bacon costs 9 cents per pound at wholesale in the English market, but the largest portion of the imports are retailed as native brands, and not as foreign articles. American hams, which cost when landed, 46 shillings sterling ($11.50) per cwt., (112 lbs.) are repacked, and marked "Belfast hams," and sold to the retailers at 95 shillings ($23.75) per cwt. Long ribs are transmuted into "Irish rolled bacon," and the price doubled; "Cumberland cut" meats, become "English farm fed," and clear middles costing 6 cents, appear on the tables of the retailers, marked conspicuously, "No Yankee Rubbish," "price, 8 pence per pound," (about 15 cents). A fashion prevails of cutting American hams into two parts, and selling one as American at 10 cents, and the other as home cured, at 20 cents. This we can hardly find fault with, as it is not altogether unknown on this side of the water. While the trade is so profitable to dealers, we shall not want for purchasers, and therein lies our comfort.

## Science Applied to Farming, LII.

### A Talk with our Experimenters.

This enterprise of field experimenting with fertilizers is assuming much larger dimensions than I had anticipated, and I am free to say that I expeet a great deal of good from it. Agricultural Science needs the help of praetieal men to promote its most useful progress. The man of practice and the man of scienee, the farmer and the chemist, can work advantageously together in many ways, and this is one. Information is needed, and can be got, and there are men who are able and ready to help in getting it. Of the accuracy with which the experiments are made, I have, of course, no means of judging, except the reports and my own personal observations in part of the eases.

HOW WELL LAST YEAR'S WORK WAS DONE.

This, last season, were very gratifying. I took occasion to visit Mr. SAGE while he was planting the corn for his experiments, one of the special trials of the effeet of nitrogenous fertilizers on corn mentioned last month. The land was accurately marked out in long, narrow, parallel plots of equal size. Each one of these was divided into eleven equal parts, the divisions being indieated by small stakes. In a little shed close to the field were arranged in order the seventeen small bags of fertilizers. On a small table were a pair of small seales, a sugar scoop, paper, and pencil. Mr. Sage was taking the bags one by one, weighing them, ealculating one-eleventh of the weight to the half ounce, and weighing off the portions. Three men were at work spreading the fertilizers. As each one came up he received the small lot of the fertilizer, mixed it very carefully with earth in a pail, went to the short strip where it was to be put, distributed it carefully, going through the length of the strip and back again, and ealculating to have a little left over to be put on in going over the ground the third time. In this way the fertilizers were applied to each division of each plot. The object of all this painstaking was to make sure that the fertilizers should be "applied evenly over each plot." Frequent visits convinced me that the whole experiment was conducted with corresponding care.——I visited MR. BARTHOLOMEW'S Experiments when the crops were being harvested. Nearly every hill of corn had exactly four stalks. Those of a certain number of hills, twelve, I believe, were put in a shock. The ears of corn and stalks of each shock were weighed, and the weights noted in a schedule devised for the purpose. By a simple and ingenious arrangement, a spring scale was attached to a cart, which was driven along the rows, so that each lot could be weighed as it was loaded, with very little trouble. Everything, from the arrangement of the plots to the disposal of the corn in the crib where it could be weighed and shelled after it had dried, to determine the loss in shrinking and the number of pounds of ears to the bushel of shelled corn, like the thrifty appearance of the whole place, showed careful, thorough work.——Of PROF. FARRINGTON'S experiments, which I also had the good fortune to see, it is sufficient to say that they had the usual care given to such work by that gentleman and his students at the Maine State Ag'l College.

And yet, with the very great care, thoroughness, and completeness with which all these experiments were made and reported, a large number of others, so far as the reports indicate, were made not one whit less thoroughly. I have been frequently congratulated upon finding such excellent men to work together in these experiments. It is not that I or any one else has found them, but that they have sought the work, and that they represent a large class of efficient farmers who can do and are doing a vast deal to advance the agriculture of the country. The intelligent, progressive American farmer, and his name is legion, is a good deal of a man.

Now, I have said all the above with a purpose. There are thousands of men in the country like Prof. Farrington, Mr. Bartholomew, and Mr. Sage,

who can and will do extremely useful work in this line. Many of them are experimenting this summer. I wish to urge those engaged in the *American Agriculturist* Experiments to make their trials as thorough and complete as possible, and send in accurate and full reports.

FAILURES AND SUCCESSES LAST SEASON—LESSONS TO BE REMEMBERED.

Of course all of the experiments were not as thoroughly made nor as successful as those just mentioned. Some had no decided story to tell, and some none at all, except failure everywhere. Corn was tried on soil not adapted to it, pulled up by crows, and injured by worms. "A lot of small pigs rooted around" one experiment to its great detriment; "the ravages of white grub" rendered another unreliable; "potato bugs" made havoc with a third. Frost and drouth injured a number, and, I am inclined to mistrust, wrong application of the fertilizers still more. One experimenter applied only part of the fertilizers; another did not put them on until five days after planting; another was too busy to complete the weighing accurately; and yet another was sick, and had to leave the details to the hired man. Some of the irregularities I can account for only by unevenness of the soil. We can judge better of this where two or three plots were left unmanured as recommended; but most had only one, and a few none, for comparison. One experimenter, surprised at the high yield of his unmanured plot, found, on closer examination, that it had been getting the benefit of the drainings from the ash-heap of his maple sugar works.

INDECISIVE RESULTS ON RICH SOIL.

One experimenter found "a loss all the way through," and wrote: "According to this showing, it will not pay me to use any manure—not even to move my barnyard manure, which I have always saved and made as much of as possible. I wish you would write me a letter to 'brace me up;' I am getting terribly skeptical." Well, he got 47 bushels of shelled corn to the acre on the unmanured plot. It appears that the field was dressed only two years ago with a lot of that yard manure of which he "makes as much of as possible." Land farmed as well as his report would lead us to think his was, and in condition to bear such a crop with no manure, might easily fail to pay for such costly applications the first year. And with such a store of plant food in the soil, the effects of the fertilizers would naturally be so blinded that the experiment would give very little clue to what the soil would need when it should have only its natural strength to depend upon. I hope he will note the results on the same plots during this present season.

And finally some trials went wrong for reasons which are beyond the experimenter's ken or mine. But a great many had a straight story to tell, and told it every time. And some, which in themselves seemed the least decisive, were, in reality, the most instructive of all. The following are among the many

QUESTIONS ABOUT WHICH INFORMATION IS NEEDED AND CAN BE OBTAINED, ARE:

1. *The Feeding Capacities of Plants.*—By this I mean the power which different plants possess in varying degrees of obtaining their food from soil and air. Clover will gather large amounts of nitrogen where wheat will fail for lack of it. Our experiments of last season imply that corn has in large degree the power of gathering and storing nitrogen. If future experience confirms this as a principle, and we find that instead of buying nitrogenous fertilizers for corn we can, at small expense, for mineral fertilizers, make our corn gather nitrogen to enrich manure for other crops, the fact will be of incalculable value to farming generally, and especially in the older States.

2. *The Specific Effects of Different Fertilizing Materials on Different Crops.*—In last season's experiments nitrate of soda and potash salts were generally profitable for potatoes, while for corn, the potash salts paid in about one-half, and nitrate of soda in but few of the trials. How generally, and where such will be the case, it is important to learn. Indeed the feeding capacities of plants, and the specific effects of different fertilizing materials upon them are among the weightiest problems in the present range of agricultural investigation.

3. *The Effects of Different Fertilizers in Different Circumstances of Soil, Climate, Weather, etc.*, including their direct effect as plant food, their indirect action in bringing plant food already present into available forms, and their effect upon the physical condition, the texture, of the soil.

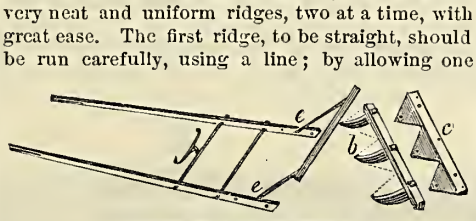
4. *Comparative effects* of artificial fertilizers and farm manures.

For all these things careful work, close observation, and full and faithful statements of results are indispensable. So let me ask the experimenters to note carefully the details provided for in the blanks for reports, and to enter their observations upon their memorandum books as they are made. During this month the weather and the early progress of the crops on the different plots are among the things to be especially noted. W. O. ATWATER,

*Wesleyan University, Middletown, Conn.*

## A Ridger for Roots and Other Crops.

A description and sketch of an implement comes from H. Lane, Cornwall, Vt., who, if we mistake not, is the Hon. Henry Lane, to whom we are indebted for a marked improvement in beets, and who has done much to advance root-culture generally. The implement is for throwing land up into low ridges, upon the top of which the seeds of beets, mangels, rutabagas, onions, etc., are sown. Mr. L. quickly converts his corn-marker into a ridger. The corn-marker, fig. 1, consists of two cedar poles for shafts, connected by two cross-bars, and furnished with a handle two feet high; the marking portion, which is attached at the rear of the handle, is removed. For the ridger, a piece of 3 x 4 oak scantling, 48 inches long, has three cultivator teeth bolted to it; one at 8 inches from each end, and the other in the center, making the teeth 16 inches apart; this piece is shown at *b*. A 2-inch oak plank the same length as the scantling is cut into three teeth, as shown at *c*; these teeth are so cut that their points will correspond to the cultivator teeth. This plank is bolted to the back side of the scantling in such a manner as its points will be three inches higher than the lower ends of the cultivator teeth. The whole, scantling and plank, is bolted to the shafts of the marker, just forward of the handle, at the place marked *e*. The point where the scantling sits upon the shafts should be so bevelled that, when those are hitched to a horse, the cultivator teeth will stand upright. Mr. Lane says that with this implement upon land free of stones and coarse manure, he can make very neat and uniform ridges, two at a time, with great ease. The first ridge, to be straight, should be run carefully, using a line; by allowing one




RIDGER FOR ROOT CROPS.

tooth to follow where the outside one went before, all the rest will be straight. Mr. L. formerly sowed his onions 14 inches apart, but he prefers 16 inches. In setting out onions for seed, he plants on every other ridge. For beets, he formerly used every other ridge, but finding 32 inches to be needlessly far apart, he has made another ridger exactly like this, except that the teeth and points are 24 inches apart. He finds the ridger most useful, and gives the benefit of his experience to others.

**Rhode Island Turkeys.**—A correspondent asks, if Rhode Island Turkeys are a distinct breed. The State of Rhode Island has given its name to a first-class article of poultry raised within the State and in Eastern Connecticut, just as Orange County has given its name to the best quality of butter. This little State, and the adjacent counties in Connecticut, give turkey raising a prominent place in their farming. The soil and climate are admirably adapted to the business, and the turkey crop is about as sure in its results as the raising of pigs, or calves. Turkeys, especially the Bronze and the Narragansett breeds, have been bred for size for a great many years, and flocks, averaging from 12 to 14 lbs. each, when dressed for market, are not uncommon at Thanksgiving and Christmas. They are sent principally to the Boston and Providence markets; they are perfectly fattened, and the crops and entrails are always drawn, which may be one secret of their excellence. To have roast turkey in its perfection, it should be cooked and served at Thanksgiving along the shores of Narragansett Bay.

## Equalizer for Three Horses Abreast.

The economy of using three horses abreast in field work is apparent. In plowing heavy soils, or in the use of gang-plows, three horses and one man will do the work of four horses and two men. At the present time, when we must diminish the cost of production by every possible method, this is a saving of no little importance. The difficulty in using three horses has been, the want of a method of so applying the force as to avoid side draft, and the trampling of one horse upon the plowed ground. We have recently tried a three-horse evener, known as "Frederick's Equalizer," and



Fig. 1.—EQUALIZER FOR TWO HORSES.

find it to answer its purpose in avoiding the above difficulties. To prevent a multiplicity of tools, this evener is adapted for use with either two or three horses, by making slight changes in the arrangement, as shown in the engravings. At fig. 1 it is ready for use with two horses, and at fig. 2 it is shown as when intended for three horses. When

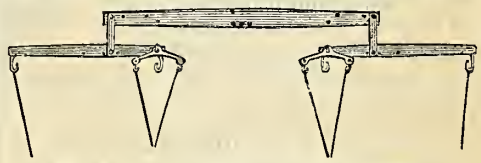


Fig. 2.—EQUALIZER FOR THREE HORSES.

this is used in plowing, the traces are crossed, as shown at fig. 2, by which the horses are brought as close together as is convenient; otherwise the traces are kept straight. The evener may be used in wagons, harrows, plows, or harvesters, a stay chain being provided for use with a tongue.

**Sheep.**—We hear very favorable reports from sheep owners and breeders, and the markets show that mutton is in demand, at good prices. Sheep raising in the West is rapidly becoming a staple business, free from the somewhat speculative character which at first belonged to it. This is doubtless in consequence of the practical experience gained by those who have retained their flocks, and who have turned early reverses to profitable successes, through perseverance. The Merino breeders are disposing of large numbers of rams for breeding purposes, and these can now be procured at reasonable prices by those who would improve their flock.

**Sweet Corn for Fodder.**—A trial of several varieties of sweet corn for fodder for milk cows, the past season, has resulted very successfully. Many good farmers have for years past considered sweet corn fodder to be worth more than that from field corn. The large quantity of sugar contained in sweet corn makes it a highly nutritious food, sugar being as much a nutriment as starch—indeed, it is strongly believed by some physiologists that the starch of food is changed in great part to sugar during digestion and before assimilation. But it will be found in practice that the most valuable fodder is that which is grown so widely apart that the juices of the stalks are matured and the ears are considerably developed before the crop is cut. Small early varieties, planted in May and afterwards, may be gathered in July and August; and the medium late varieties, such as the Triumph, will come in in August and September; while the late Evergreen will last until frost stops the growth.

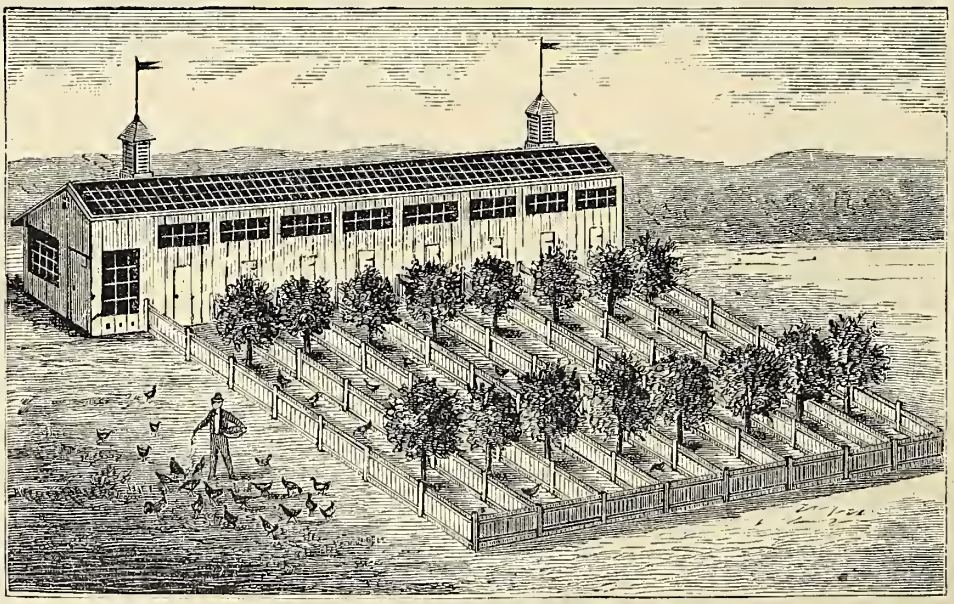
## Mr. Kemp's Poultry House.

The accompanying engraving represents the poultry house of Mr. Kemp, of Germantown, Ohio, which the owner thinks to be cheap and convenient. It is built upon a raised bank, and has a trench around it which keeps the interior always dry. The house is 72 feet long, and 12 feet wide, and is divided into nine apartments, each 8 x 12 feet. Eight varieties of fowls are kept in it; the ninth apartment being reserved for packing eggs and other purposes. The runs are 8 x 70 feet, and each run has two plum trees in it, which furnish both shade and fruit: the plums, it is said, are not injured by insects. There is no room lost by alleys or passages inside of the house; entrance is gained by doors which open into each pen and run. To preserve cleanliness, every part of the building is made accessible, and ventilation is secured by two cupolas. The rear part of the house is 5 feet high, and the front, which faces the south, is 8 feet in hight. There is a stout roof of glass on the south side, and a window in each apartment. Mr. Kemp writes that his fowls are kept in perfect health, and he attributes this, in great part, to the dryness and airiness of his house. It is well to refer here to the numerous cases of disease and death among poultry, which have occurred the present season, and which are always appearing from want of attention to the requisites of cleanliness, dryness, and ventilation. Fowls kept in damp, unclean quarters, have died in large numbers, and they will continue to die, whenever exposed to these unhealthful influences. It is in vain to use remedies while the cause of the trouble exists, and it is surprising that poultry-keepers should not learn from repeated and costly experience, that fowls are as much subject to diseases from damp, filth, and close, heated quarters, as any other animals. "Chicken Cholera" is caused by the poisons thus engendered, and is not to be cured by the astringent medicines commended.

COMBINED ROCK-WORK AND DUCK-HOUSE.

## Sugar Beets, and Beet Sugar.

Serious misstatements have been made in regard to the yield of sugar beets, and their profitable use for sugar making. It is a pity that some will get enthusiastic over a new idea, and lead others astray. Thus it has been frequently stated of late, that sugar beets are an enormously productive and profitable crop; that at the rate paid for them at the Maine beet-sugar factory, viz., $5 per ton, this crop will bring $250 per acre, the yield being 50 tons per acre. This would be an extraordinary yield for the grosser, and more prolific mangels, and an utterly improbable one for the less vigorous, and more refined sugar beet. A yield of 18 to 20 tons, is considered a fair crop in France and Germany, where they have been learning the best methods for years, and if we can succeed here as well as do the French and Germans, we shall be more fortunate than we have hitherto been. The truth is, the sugar beet crop is very remunerative at $4 per ton. Twenty-five tons per acre will amount to $100, which is equal to 200 bushels of corn per acre at present prices, and the refuse pulp, or beet-cake and the leaves, are worth more as food, than the fodder from the corn: 25 tons is equal to more than 800 bushels per acre. Fifty tons per acre, which is the misleading estimate given by some too sanguine writers, is equal to 1,600 bushels per acre, or 10 bushels from a square rod: or 40 two horse wagon loads, of 40 bushels each to the acre. Those who have grown roots, well know how rarely such crops as this, even with the mammoth red mangels, which reach a weight of 25 lbs. or more per root; while a sugar beet of more than one fourth that weight, is not desirable for sugar making, because it is deficient in saccharine matter; the smaller roots being the sweetest. The cost of a crop of 25 tons of sugar beets, need not be more than that of 80 bushels of corn per acre, so that a handsome profit of $60 per acre results from the former; counting the beets only, at $4 per ton, and the corn at 50 cents a bushel. We by no means state these facts to discourage the growing of sugar beets or the manufacture of sugar. We are well persuaded that we shall ultimately make our own sugar from beets, and it is to hasten this end that we would have farmers avoid the discouragement that must follow false expectations. When we succeed in profitably making sugar from beets, we shall then keep at home $90,000,000 which annually goes abroad to pay for foreign sugar. This is surely an end worth striving for, and every farmer should feel a lively interest in its accomplishment.



VIEW OF MR. KEMP'S POULTRY HOUSE AND YARDS.

## A Rock-work Duck-House.

Duck-houses are often built of brick; they may as well be of stone, if that material is at hand, and in suitable localities, the house may be made ornamental by fitting it to grow alpine plants and ferns—in fact, a combined rockery and duckery. Such a house may be an intrusion from being out of place, or it may, in an appropriate spot, add greatly to the embellishment of the grounds. The general ideas on such matters given last month on p. 187, apply in this case. Near a pond, such a duck-house may find an appropriate place, or if the disposition of the grounds is such that it would be proper not far from the lawn, such a location would be desirable, as then the birds could add an attractive feature to the lawn. Ducks are the only poultry, that may with safety be allowed the run of the grounds; they do not destroy by scratching, like other poultry, though they are not admissible to borders and flower plots where there are small plants, on account of the injury they may do by trampling. Where the surroundings will allow, the large pure white Pekin ducks, or the varied and rich colors of the Rouens, make them not only tolerated, but desirable, partly on account of their beauty, and also as destroyers of insects. The engraving represents a house of this kind recently built. An interior room or cave is first built of brick, or small stones, laid in cement, outside of which the rocks are disposed in a natural manner. In the rear there should be an opening to allow of access to the cave, and this may be closed by a door of cedar strips. In arranging the rocks with a view to the growing of plants, crevices of different sizes must be left, and these are to be filled with vegetable mould from the woods, or peaty earth, mixed with sufficient sand to keep it always loose. As stated last month, success in growing plants in such crevices depends on having the earth they contain in connection with the soil below. Indeed, for all that relates to the duck-house as a rock-garden, reference may be made to that article. To prevent the ducks from leaving their eggs here and there, after their usual manner, they may be confined by a movable pen of wire netting until they have laid.

**Angora Goats.**—For some reason, the goat fever of California and elsewhere has suffered a relapse. Where flocks of thousands were started, there are now heard complaints that the wool fails to pay more than the expense of feeding, making the flock, the larger it grows, a greater incubus upon the owner's pocket. Prominent goat owners have looked for their profit not to the wool, but to the sale of animals for breeding, and as the demand in this way has ceased from what are now called "ignorant and deceived customers," and is very small indeed from others, the profits amount to nothing. This may be unfortunate, because there would seem to be a place in our industries for the rearing and keeping of goats, as well as a demand for their wool, under proper management. So far, however, legitimate goat keeping for wool has hardly existed, and it is to the exaggerated statements made by persons interested in selling bucks at high prices, that the unfortunate condition of a promising industry may be charged. All new industries are acclimated through difficulties.

## The Northern Calypso.

At one of the monthly meetings of the N. Y. Horticultural Society—which, by the way, are rapidly growing in interest and importance—one of the most attractive objects in a really fine exhibition, was a large pan filled with the Northern Calypso (*Calypso borealis*). This was one of the exhibits of Woolson & Co., of Passaic, N. J., who, having received the roots from Oregon some time previously, planted them in a large pan of sphagnum, where, in a cool greenhouse, they came forward without any of the drawn-up appearance too often seen in forced plants. Calypso—it has received no other name—and needs none—is an Orchid, and like the other northern members of the Orchid Family it is terrestrial, while the majority of those in warm countries, growing upon the branches and trunks of trees are epiphytes. It is a rare plant in the peat bogs of Northern New England, is found in Nova Scotia and other parts of the Dominion, and is more frequent north-westward, it being quite common in the dark, damp fir woods of Washington Territory and Oregon. In the old world it is found in Siberia and other high northern countries. Calypso has a small solid bulb, from which arises a single leaf; this is evergreen, ovate or heart-shaped and strongly veined. In spring it throws up a stem three to six inches or more high, bearing at the top a solitary flower, which is shown of the natural size in the engraving. The flowers of the orchids, generally, are of such irregular and peculiar forms that their structure seems quite unlike that of most other flowers. The flowers have six divisions, three outer, answering to the calyx, and three inner forming the corolla. The unusual appearance is generally due to one of these inner parts or petals, the lower one, being usually much larger than the others, and of a different shape. This petal is technically termed "the lip." This in Ladies Slippers (*Cypripedium*), is so large and inflated that it forms the most conspicuous part of the flower. Other parts of the flower are sometimes irregular, but it is in the lip that we find the greatest departure from the usual form. In Calypso we find the three parts of the outer series, or calyx, and two of the petals, much alike, all narrow; sharp-pointed, and standing erect; below is the lip—much the largest part of the flower, which is irregularly formed, inflated, turned over at the edges, and terminating at the lower end in two points. The general color of the flower is pink, or pale rose-color, which is variegated in the lip with deep purple lines and a broad yellow blotch; the lip also bears tufts of yellow hairs. The hooded portion just above the lip belongs to the stamens and pistil, the structure of which can not be readily described in a popular article. But neither engraving nor description can give a proper idea of the delicate beauty of this little plant; and we are not disposed to disagree with the writer who calls it "the most beautiful of all Northern Orchids." Like other natives of the peat-moss bogs, it can only be successfully grown by giving it a locality something like that in which it is found. For the showy Ladies Slipper and other plants of the bogs, we have a spot in a clump of evergreens in which an excavation was filled with a mixture of peat and sandy soil, and over this is put a good covering of sphagnum or peat-moss. The Calypso would flourish here, but its beauty is of a kind that requires close examination, and we prefer to cultivate such small subjects in pots or pans of peat and moss, and keep them in a cold frame. The name, Calypso, is that of a heathen goddess, of whom the less that is said the better.

NORTHERN CALYPSO.—(*Calypso borealis.*)

EUROPEAN DOG'S-TOOTH VIOLET.—(*See next page.*)

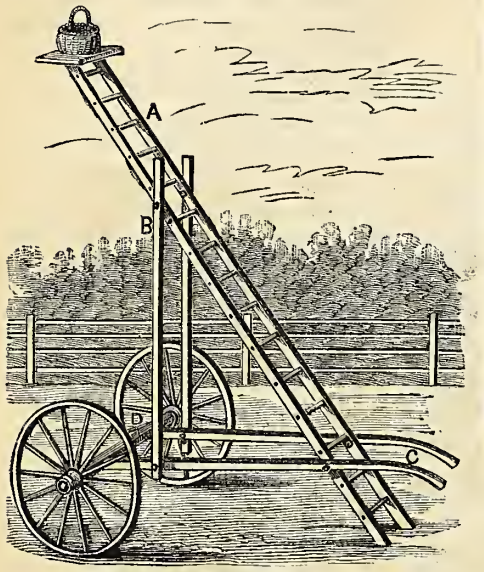
## The Winter Aconite.

To learn all about a plant and its cultivation abroad, through accounts in books and journals; to be perfectly familiar with its appearance from colored and plain engravings, and yet not be able to know the plant itself through the acquaintance which cultivation brings, is a most annoying position for a real lover of plants. Such have heretofore been our own relations to the Winter Aconite, the appearance of which was noted every spring by the European journals, with words of praise that made us each year all the more desirous to have and know the plant. With this feeling, it may be assumed that our ignorance was not due to a want of effort to cultivate it. Each autumn the roots are offered, in small quantity, by our bulb dealers, and each autumn, for years, we have procured the roots, now from one dealer, and now from another, and planted them in the border, on the rock-work, in the wild garden, and even in pots, and each succeeding spring have watched, but in vain, for the "well-known and admired Winter Aconite * * one of the earliest and hardiest of spring flowers." It being a native of Central Europe, it may have been supposed that our winters were too severe for it, had not the failure been the same in pots wintered in the cellar or in the pit. Not discouraged by repeated failure, roots were again set out last fall, and this spring we had, for the first time, an abundance of Winter Aconite. The key to former failures was to be found in learning the difference between this and former plantings. In the planting itself, there was no difference, but in the roots themselves, there was—a slight difference, it is true, but enough to cause success or failure. Last fall we received the roots in the very heavy paper bag in which they had been imported, and in the buckwheat chaff in which they were packed.

Heretofore we had taken the roots from the dealer's show counters, it being their habit to unpack their bulbs and roots, and place them in pans, baskets, etc., upon tables, where their customers may see them, and where they may be at hand for filling orders. This exposure may be for a few days or a few weeks, and a part of this time the weather may require the store to be heated; while this does not at all injure hyacinths, tulips, and most others, it is sufficient to destroy the vitality in Winter Aconite, and in some other roots and bulbs, and accounts for other failures. Having been particular in describing this matter, for the benefit of those who sell and those who buy bulbs and roots, we add, as to the plant itself, that the engraving gives its size and the general appearance of the flowers from a single root, though it does not give the effect of a mass, the condition in which it shows best. Later, the stems grow to about twice the hight here shown. The flowers are described as "yellow," but it is a pale and most delicate shade of the color, and quite unlike the positive yellows of the Spring Adonis, the Daffodil, and other early flowers of this color. Now that we know how to get it, we have no doubt that the Winter Aconite will take its place in our gardens, to bloom with the Blood-root, Jeffersonia, Snow-drops, and other very early comers, over most of which it has the advantage of giving a much longer season of bloom. It is a capital plant for the wild garden, and will probably become with us, as in England, perfectly naturalized, and need no care beyond division when it gets too thick. The name *Eranthis* is from the Greek words for *spring* and *flower*, though in Europe it better sustains its English name—Winter Aconite, as it

WINTER ACONITE.—(*Eranthis hyemalis.*)

flowers there in January and February. It is a member of the great Ranunculus Family, as may be inferred from the resemblance of its flowers to those of the Anemones. It is not very near the Aconites, but more closely related to the Hellebores (Christmas Rose, etc.), indeed the earlier botanists placed it in *Helleborus*, from which it differs but little.




## A Ladder for the Orchard.

In the course of years we have published many styles of fruit or orchard ladders; some of these were for the conversion of an ordinary ladder, into one suited for orchard work, and others have been special contrivances, useful for fruit picking, and for scarcely anything else. We now give one for which a very neat sketch and the measurements were sent by "A. C.," who, while he gave his full name, omitted to write his address, and we only know from the more than usually blind post-mark, that he is somewhere in Illinois. The engraving plainly shows the affair—a ladder mounted upon a two-wheeled wheelbarrow. The brief directions point out the following points to be observed in building it. The axle for the wheels, in order to give as broad a base as possible, and avoid the danger of its tipping sidewise, should be as long as will allow it to pass through the gates upon the farm. To avoid tipping forward, it should be so built that a plumb-line dropped from the top of the ladder will strike the axle. The shafts (*C*) should hinge under the axle, near to the wheels; where they are bolted to the ladder the holes should be large to give some play, and they should extend far enough back to afford convenient handles. The standards, *B*, are bolted to the shafts, *C*, at a point one-third the distance from the axle to the foot of the ladder, and are attached to the ladder at a point three-fourths of its length from the base. Our correspondent writes that if one has a pair of wheels, such a ladder will cost from $2 to $3, more than a common one, and gives it as his experience that "it beats the world in an orchard or a stack yard."

## The European Dog's-Tooth Violet.

(*See Engraving, Page* 227.)

Probably no wild flower is better known than our native Dog's-tooth Violet, or Adder's-tongue, *Erythronium Americanum*. This, though beautiful in itself, suffers by comparison with *E. Dens-canis*, a native of Continental Europe, and found even as far north as Siberia. As compared with our species, the leaves in this are shorter, more strongly blotched with reddish-brown spots, while the flower is more open and of beautiful shades of rose-purple, which are darker without than within. The engraving shows the form, but of course fails to give the color of this beautiful early spring flower—and is also less than the natural size, the flower stems being usually six inches high. There are varieties with white, rose, and flesh-colored flowers, but none of them, to our notion, equal the ordinary form in beauty. This is one of those little gems which one can not properly describe without seeming extravagant over it. We content ourselves by saying that it is simply beautiful, and that no one who has formed an idea of it from the most enthusiastic description, will be disappointed in the reality. This is one of the common flowers of Europe that, like the Winter Aconite,—described elsewhere, we have tried for years to grow from the bulbs imported by dealers without success. A few years ago a correspondent in England sent us some bulbs, packed with other plants, which came without having been dried, and grew freely. Our two or three plants from this source only caused a desire for more. Last fall we procured from a dealer, an original package of the bulbs, just as they were put up in sand, and which had not been exposed to the drying influences of our autumn air; these were planted last fall, and this spring made a most satisfactory show. The only hope our plant-lovers have of growing this, or the Winter Aconite is, to obtain from the dealers bulbs which have not been exposed, or to procure fresh bulbs from such florists as grow them, and may be able to supply them fresh from the soil. Its earliness and real beauty make it a most desirable plant—not the less desirable here because it is common abroad—and we think that our florists will find it to their advantage to offer bulbs that have not been subjected to the risk of drying. Why such an unmistakable lily-like plant should be called a Violet, and if a Violet, why a Dog's-tooth, is a puzzle that we will not now undertake to solve—suffice it to say that the name is, through long usage, thoroughly attached to the plant, and those who prefer this uncouth English name to *Erythronium*, are welcome to it.

## Notes from the Pines.

When I began this series I did not intend to write every month; the good friends who, whenever a gap occurred, were so kind as to write and inquire the cause of the omission, have by this time learned that I intend to be regularly irregular. I started with the intention of writing only when I had something to say. It must be most irksome to write every month, whether one has grist to the mill or not. This time I have something to say—and it is

### About a Wild Garden.

I wish I were sure that this could catch the eye and have the attention of the many who really love flowers, but, for one reason or another, have no garden. With many who live in the country, a flower garden is something to come in that future when there shall be "time." Many a country dweller who intends to have a garden, looks upon it as an undertaking that requires an outlay of time, labor, and money. It is to be in the good time coming, and in the meantime he gratifies his love for flowers by occasional rambles to see what the woods, the meadows, and the coppices afford him. Now suppose that instead of tramping for some miles for a few wild flowers, these could all be found—not only these, but a great many more—all within the area of a few yards! Would he not rejoice at it. This is just

### The Idea of a Wild Garden.

A nook somewhere—not already too much crowded with natural growth, where the roots of trees and shrubs will take all that the soil has to give—but a good bit of unoccupied soil. Here put all the native flowers that are desirable, with a whole host of the hardy plants from other countries. There are few farms that do not afford such a spot—no matter if it be at a distance from the house; this garden has not to be watered, watched, and tended. But there may be those who, like myself, prefer to make a wild garden. Our wooded hill-side is too far off, though that is more or less planted, and even the pasture has a corner penned off for moisture-loving plants. There is not much wild about my wild garden save the plants. The hen-house and the boundary fence make a corner. The fence is hidden by a row of closely planted evergreens. The side of the hen-house is made "wild" by a drapery of Virginia Creeper and American Wistaria, and in this corner, well away from fence and hen-house is

### A Rock-work.

This rockery, of the stones at hand, was made with but one thing in view—growing plants. It would defy any geologist to account for its upheaval, especially as it is mainly of new red-sandstone, the worst of all rocks for the purpose, but all that we had. Of natural rock-scenery there is little, but of cracks and crevices there are many. The ground around the rockery, for some distance, forms a part of the wild garden. Last fall, a goodly collection of plants came from European correspondents, but I was away when they were planted, so this spring I had not only the pleasure of seeing the plants, but of making new discoveries. I have read of an eccentric literary man—whose name I have forgotten, who was very fond of confectionary; one of his oddities was, to hide sugar-plums and the like, in all sorts of odd places, that he might enjoy the pleasure of finding them unexpectedly. My first visit this spring to the wild garden reminded me of him, in discovering new plants in unexpected places, and could understand his satisfaction over his discoveries of hidden sweets. While there are

### Enough Wild Flowers

in almost every locality to make the wild garden attractive, and one is worth having for these only, there are a great many from other countries that are able to make themselves quite at home, and become naturalized just as easily as do the human inhabitants of those countries when transplanted to our soil. Of course the wild garden will have a succession from early spring until the frost puts an end to all bloom, and this mentioning of those that greeted my first visit, is intended only to show some of the early blooming plants that may be introduced. At the foot of the rock-work was

### A Sheet of Brilliant White.

Can anything be more beautiful than this?—Yet it was only our common Blood-root (*Sanguinaria Canadensis*) that may be had almost anywhere for the digging. Near by, that best of early spring bulbs, *Bulbocodium vernum*, earlier than Crocus, and in a mass more showy, had nearly gone out of flower....Another charming early native is

### The Rue Anemone,

*Thalictrum anemonoides*, delicate in foliage, and habit, and bearing an abundance of its tiny white flowers which have not the brilliant opaque white of those of the Blood-root, but quite as pleasing in their way. This is one of the few flowers that show a tendency to become double in their wild state. I have a number of times found this partly double, and several years ago a friend in England sent me a full-double, and a charming thing it is.—But speaking of doubles, I know of none of our wild plants that makes such beautiful double flowers as

### The Hepatica or Liver-Leaf.

*Hepatica triloba* is the botanical name by which it is generally known, but European botanists place it in the already too large genus Anemone, and call it *Anemone Hepatica*. It is common in the woods, at least in all the Eastern States, flowering as soon as the snow is off. It is also a native of Europe, and the Europeans have secured a number of double forms in a variety of colors. I have found it, wild, from nearly a pure white to the deepest blue, but never saw any tendency to double. The doubles must be imported; they do not appear to be easy to manage, but are worth any amount of trouble. There are double white, pink, red, blue, and purple, with intermediate shades, and each one a gem in itself. I am glad to notice that some of our dealers in hardy plants are giving attention to these double Hepaticas. I find that we have quite a collection of native and foreign species of

### Erythronium or Dog's-tooth Violet;

these are not violets, or at all like them, but are little lily-like flowers. Another name has been proposed for our native species—Adder's Tongue—probably on account of its broad spotted leaves, which are not at all like the tongue of an adder or any other snake. Our common *Erythronium Americanum* is welcome, but when it comes to the question of beauty the European *E. Dens-Canis*, is far ahead of it. In beautiful contrast to this is the White Dog's-Tooth Violet, rare at the East, but

common in the far West, and well worth having. Those who like oddities in the way of plants will admire the

**Asarums or Wild Gingers.**

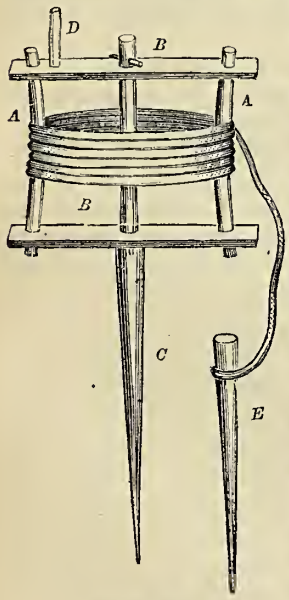
One speeies, known as Canada Snake Root, is common in all the Northern woods. These, with two Southern speeies, another from Oregon, and one from Europe, make up a group whieh, while not showy, will interest the botanist. When we eome to showy plants in the wild garden we find *Aubrietia deltoidea* spreading a sheet of delieate purple upon the roek-work. In a eorner there is the *Winter Aconite*, one of the earliest of all, and a little later, *Adonis Vernalis*, with flowers of a brighter yellow, and foliage so dark-green and beautifully cut that it would be worth growing for that alone. Close after Adonis eomes the slender-leaved Pæony, *Pæonia tenuifolia*, double and single, so beautiful with their rieh erimson flowers, fine foliage, and withal so rare. The Grape Hyacinth, *Muscari botryoides*, naturalizes well in the wild garden, and both the dark-blue and the white kinds seem to be quite at home. Among other native plants worthy of speeial notiee are Dutchman's Breeches (*Dicentra Cucullaria*), three-leaved Geum (*Geum triflorum*) from the far West, and more showy in fruit than in flower; the American Pasque Flower (*Anemone patens* var. *Nuttalliana*), its enormous flower making it noticeable.—But it would make too long a list to name everything, my objeet being to commend

**The Wild Garden**

to every lover of wild plants. Our natives ean grow there, and a large number of foreigners may be naturalized and made wild. It ean be a souree of great pleasure to those who can have no other garden, while to those who have the most formal borders, it will be a pleasing change to have a nook or corner where their favorites ean be at home. Mueh credit is due to Mr. W. Robinson, editor of "The Garden" (Eng.), for his advocacy of the Wild Garden. He has done mueh to eheek the mania for "bedding out,"—well enough in its plaee, but not the only style of gardening worthy of consideration.

## Garden Reels, Once More.

In the Notes about Garden Work for April, the general laek of stability in the Garden Reels now sold, was mentioned. This brought out, as we intended it should, several eorrespondents, one of whom, R. Foster, of Ohio, gave a drawing of his reel, whieh was engraved last month on page 176. Later came our friend "J. E.," of Egg Harbor City, N. J., with an aeeount of a most excellent reel, perhaps easier to make than Mr. Foster's, and will earry a longer line than that. This reel was made by "J. E." over 15 years ago, and he has had it in use ever since. He learned how to make it *from an engraving given in the American Agriculturist!* Turning baek to the volume and page — 1864, page 113, there, sure enough, was our old reel! The writer had a gap of three or four years in his gardening operations; in eommencing anew, such iron reels as could be bought were used, and used up, while the exeellent home-made one of the former gardening period was quite forgotten. It was with an indistinet idea that he had known of something better that the "Notes" in April were written, but the faet that we had already published something better had quite eseaped him. Thanking J. E. for reminding us of it, we here reproduee the engraving of 1864; another generation of gardeners having sprung up sinee, it will be new to the great majority. The cut needs but little explanation; the reel should be made of hard-wood; the eenter pin or stake, *C*, is 2 to 2½ feet long, an ineh in diameter where it passes through the eross-pieees; there is a shoulder upon whieh the lower piece rests, and from there the stake is worked down to a point. The eross-pieees, *B, B*, are 1 foot long, 2 ineches wide, and ⅛ or ¼ ineh thick; the eurved side-pieees, *A, A*, are made from branches, with a slight natural curve, or worked out of straight stuff; these



GARDEN REEL.

are 12 to 15 ineches long, and pinned to the eross-pieees, where they pass through them. A pin through the upper end of the eenter stake holds all together, and a handle, *D*, with another stake, *E*, eompletes the affair. The side-pieees should project below the eross-pieees rather farther than in the engraving, to make eorners around which to hiteh the line when enough has run out. J. E. says that to make this reel last, house it every night.

**Cactuses in Summer.**—We are glad to reeeive questions eoneerning the proper treatment of plants of the Caetus Family, as it shows that the interest in these old favorites in window gardening is returning. The majority of the most showy and largest flowered speeies and varieties bloom in summer, they make their growth at that time, and need watering the same as other growing plants. In autumn, when their new growth is made and mature, dry off gradually, and keep them dry, or nearly so, for three or four months, and of eourse away from frost. The Epiphyllums or Crab's-Claw Caetuses bloom in fall or early winter; with these, the time of dryness is reversed; they are kept dry during summer, are given water in early fall, and are kept supplied until the new shoots are full grown and ripe, when it is to be withheld and the soil dried.

# THE HOUSEHOLD.

☞ *For other Household Items see "Basket" pages.*

## Decorative Art.*

BY M. G. E.

Though fret-sawing eannot be eompared with wood-earving, in an artistic point of view, the two may be very advantageously eombined to produce some exeeedingly pretty effeets, by using fine chisels and the veining tool after earefully sawing out the pattern. The design (fig. 1), for the eover of a photograph album is made of white wood, and

DESIGN FOR BACK OF PHOTOGRAPH ALBUM.

when finished should be lined with erimson velvet. The shield in the center may have an additional layer glued on to add to the richness of effeet, though it is desirable to use glue as little as possible in making up your work. A glue-pot is, however, often needed while earving. Even under experieneed hands a ehisel will slip and the fruit of mueh patient labor be carried away in an instant, but with glue the pieee is restored to its proper plaee, and when dry a few touehes of knife or ehisel makes all right again. Designs for both sides of an album eover may be eut at onee, as the wood used will be only about ⅛ ineh in thiekness, and the two pieees can be pasted together with thin paper between, so that they ean be easily separated afterwards. The stems should be delieately aud earefully rounded, and the veinings of the leaves marked with the dividing tool. This, if neatly exeeuted, will be found very pretty, quite artistie in its way, and can be made up at small expense. Fret-sawing is more tedious than difficult, owing to the necessity of eonstantly loosening one end of the saw, in order to slip it in a new hole made by a small gimlet, where the pattern beeomes diseonneeted. Hand-saws of various sizes are sold for this work at a trifling cost, but for those who are

*Continued from page 146, April *American Agriculturist.*

willing to go to the expense, the "Standard Scroll Saws" are the best; they range in price from $10 to $35. If a hand-saw is used the work should be held, edge upwards, to the table by means of a vise.

Fig. 2 is a design for a Hanging Cabinet which will be useful, as well as ornamental. It may be

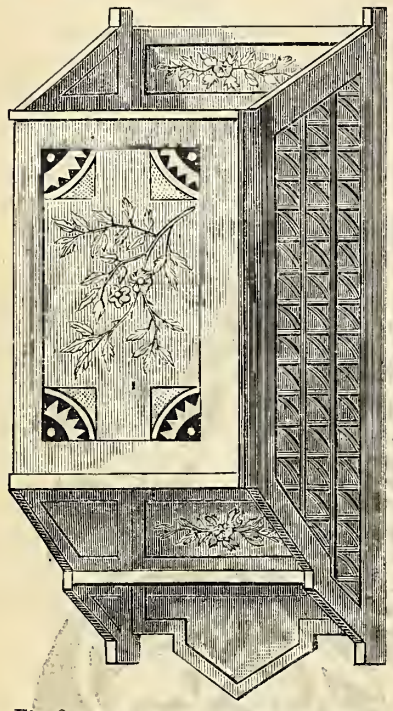


Fig. 2.—A HANGING CARVED CABINET.

black-walnut, oak, or ash. It is exceedingly simple in construction, and will bear much elaborate ornamentation, upon which, indeed, its beauty will mainly depend. The wood-carver should have thoroughly understood intentions before attempting to put them into execution, since mistakes cannot be rectified and regrets over errors in composition will prove unavailing when seen too late.

It is always advisable for the student to go to Nature for designs, where there is an endless variety of admirable subjects for the chisel; skill and ingenuity in adapting such things as may appear suit-

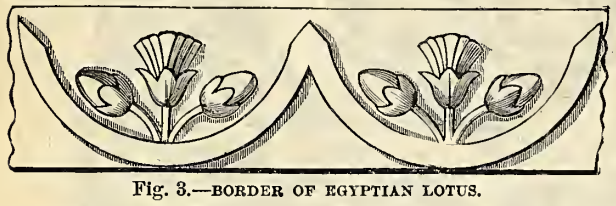


Fig. 3.—BORDER OF EGYPTIAN LOTUS.

able will soon be acquired. Leaves and flowers are the most easily represented, and while we may not in wood reproduce the loveliness of tint or delicacy of texture, we may very faithfully give the grace of outline, the tender curves of the flower, and the holder sweep of leaf. Birds are especially showy and ornamental, requiring but little of the finer work; animals of all kinds, and even the human figure, may be adapted to the purpose of our ornamentation. It is best to start out with a well formed idea in view, and carry it faithfully throughout the whole work, otherwise the effect may be fragmentary and not wholly satisfactory. I have seen a masterly piece of work designed and executed by an amateur, in which the story of Passion was delicately and beautifully carried out, the carvings were of the passion-vine; painted tiles still further suggested the same idea, and the whole

Fig. 4.—SIDE ORNAMENT.

work served as a frame to the picture of Francisca da Rimini. The absolute consistency of the whole was its chief beauty. Scroll-hinges, nickel-plated, add greatly to effect where hinges are required, and may be procured of any size. The design for ornamenting the door, or other parts of the cabinet, may be furnished according to the worker's own taste, in bold relief or the more easily executed incised work; in the former case, the wood of the panel should be thick, according to the depth of the cutting, as the gluing on of extra thickness is not to be recommended. The spray of apple blossoms on the door of the cabinet is merely a suggestion, but might be carefully handled in low relief, especially if copied from nature, so as to produce an exquisite effect. In fig. 3 is given a design for a border, arranged from Lotus-flower. Figure 4 is a figure which may be used for a side ornament.

## Home Topics.

BY FAITH ROCHESTER.

### Dolls' Patterns.

Within a few years a new department has been added to the illustrated pattern catalogues—a page of Dolls' Patterns. The pattern dealers say that little girls find a pleasure in making up wardrobes for their dolls, far surpassing any to be found in those ready-dressed dolls whose fine clothing is so made that it can not be taken off and put on again, That this is true, I have learned by my own experience as a little girl, and lately by much observation as a mother. Patterns are useful. Without them the little dress-makers are apt to waste their materials in fruitless efforts to cut and fit dolls' garments, and they grow discouraged by their frequent failures, unless mamma or some other experienced friend comes to their aid. I had furnished my little daughters with patterns of dolls' gabrielle or princesse dresses, underwaist and drawers, before I heard of dolls' patterns for sale, and the eldest had learned to cut her cloth by these patterns, using her own ingenuity, with occasional advice about trimmings and making other garments. Any mother who can cut and fit her own children's clothes can make these dolls' patterns, which are merely like children's patterns on a smaller scale.

Yet I protest against some dolls' patterns offered by fashion dealers, because the absurdities of fashion are reproduced here and taught to our children, such as the full length illustrations of dressed dolls with trains or demi-trains and much superfluous trimming and puffing and looping. It is a pity for a little girl to be set to playing with mimic young ladies. It is better for her mind and morals that her dolls should be babies or little children of her own sphere, simply dressed in fabrics she herself is able to wear. Dolls with costumes of the richest materials, teach extravagance, do not seem to be so much beloved as are the plain rag babies, even. I was much interested last fall, in the anxiety of my nine-year-old to get her little dollies all fitted out with under-flannels as the weather grew cold—to see the incipient woman learning to pay most attention to essentials, to the warmth and health of her children. One of the popular fashion catalogues gives patterns of the combination chemise and drawers (or chemiloon) 7 sizes, and there are some other sensible patterns. There are patterns for baby dolls, but none especially for little girl-dolls, though the sack and basque patterns may be used for all ages, and the dress patterns may be shortened in length. Mothers have this matter much in their own hands—whether to train up their daughters to dress their children according to the rules of health and simplicity and economy, with reference always to good taste and genuinely artistic effects; or to let them grow up with no idea of feminine dress except as a means for displaying the greatest possible variety of fabrics and designs in ornamentation, a costume in which *trimming* is the main idea, and which is extravagant in its very foundation principles. I try to hope that the next generation of women will have been so well taught in the principles of health and economy and true beauty, that the past and present absurdities of feminine costume will not be tolerated. The dolls' patterns advertised have rather discouraged that hope.

### The Kitchen Wood-Box.

Once upon a time I delivered a familiar lecture to the people in my own kitchen whom it might concern, the upshot of which was as follows (with some alteration of names): "I want you, Polly, to empty this wood-box to-day and sweep it out clean, sweeping and scrubbing where it has stood, when you clean the floor. I have heard of such wood-boxes before, but I never saw one in such a condition until now, and it must not happen again. Mary told me the other day about Mrs. Brown's kitchen wood-box.—She said, 'O mamma! you ought to see their wood-box. They don't keep wood in it; they keep dirty old rags in it. You hardly ever see any wood there, but it is all dirt and paper and rags for about a foot deep. You can't think how it smells!'—I should think so. I have been in the kitchen so little for two months past that I have not noticed our box, and now I see that there is an accummulation of several inches of rubbish. I supposed it was nearly all bark and splinters, but when I began shovelling it out into the fire, I found old paper and even one or two old rags, and was convinced that dirt had sometimes been thrown in that should have gone out of doors. Now let me tell you all plainly that the wood-box is the place for wood only. Torn papers to be used for kindling must be put somewhere else. Get a strong paper flour sack and hang it handy, and keep the torn papers in that. You may as well burn the coarsest brown paper wrappings at once, as they are not good for kindling fires, and are not needed here for any other purpose. Dirty rags, if not worth washing (for the rag bag if for nothing better), should be burned as soon as possible. All useless matter must be washed or burned without delay. And now remember, children, you must never shake the crumbs from your bibs or napkins over this box, nor toss an apple core or peeling into it. Now, Polly, I want you to empty the box once a week, on your scrubbing day, and then we can always see the bottom and know just what is in it. The pure air of the room and the good health of the family depend upon this among other things."

Thus ended the first lesson, and the second lesson should be to the carpenter, who should be told to make the box with a high back, so that the wall need not be bruised and broken by careless throwing in of wood; also to make the box rather long and high and narrow, as a general rule, so that it may hold considerable wood without occupying much floor space.

### Bringing the Baby Up by Hand.

The baby and its mother are both unfortunate when artificial means must be used for feeding the child. This might be avoided many times, by more careful management during the first week of its life. The young babe should always be put to the mother's breast as soon as both have been properly attended to by the nurse. Often this is not done, because the child can not find milk there. But milk is not what it needs at first, and the Creator has given to the human mother, as He has to mothers lower in the animal kingdom, just the nourishment needed by the new-born babe. There is usually so little of it at first that the baby seems to get nothing, but it at least cultivates the instinct of nursing, and its attempts in that line stimulate the secretion of such food as it needs, in the mother's breast. Sometimes it happens that the baby is fed a little at first because its mother is supposed to be too feeble to nurse it, and then a few days later when the "milk has come," and must be disposed of somehow, the babe is thought to be too weak to draw so much away with its little mouth, and when this crisis with the mother is past, behold the babe has forgotten its first natural instinct and can not be made to nurse. All this comes of neglecting to study Nature's teachings. I have had no such experience, but I have seen it in other cases. Sometimes there is good reason why the babe must be "brought up by hand."

Cow's milk is always recommended as the very best substitute for mother's milk, but it is usually considered too rich, and is often diluted one-half with water, and by most nurses is sweetened a little. Many have believed that babes are saved acidity of stomach by leaving out the sugar. Some do not dilute the milk so much, and occasionally it has been found to nourish the child best when given without any previous preparation, except a little warming when the babe is quite young. It should always be the milk of a fresh cow, or one not long past calving, and from the same cow.

An acquaintance lately tried to raise her baby on diluted cream, which she had heard recommended as the best food for infants. Before the babe was a month old, it nearly died of sore mouth, and it seemed to me the result of its cream diet. For I have learned to associate sore mouths and sore throats with *grease*—a rather hard name to give to anything so good as cream. The baby's diet was changed to new milk (by no means skimmed, but not all cream, as before), and this seemed an advantage to its health. It was dosed with some patent medicine also, and I presume *that* is supposed to have relieved its sore mouth. Perhaps that, too, caused the habitual constipation which followed, with other troubles. Then graham gruel was recommended by one who had tried it with good success among her own babes. It was made in the usual way, and was boiled not more than fifteen or twenty minutes, then strained so as to remove the bran, and seasoned with milk and sugar. But this did not set very well on the child's stomach, and oatmeal gruel was prepared for it in the same way, only it was boiled two hours. This agreed with the child well, but did not correct the constipation. So the mother made her graham gruel as she did the oatmeal gruel, cooking it in an earthen jar, set in a kettle of boiling water, and kept boiling gently for two hours, and this she finds the best food the babe has had. It thrives well, and its trouble is removed. It seems to me that if she would leave out the sugar, she might be able to get along without the "soothing syrup" she also uses. (I can't lose this opportunity of testifying again that *I* would never, never give the soothing syrup,) and avoid doctoring the poor child now and then for sore throat or colic.

## More Baby-Tenders.

As we expected, the "Baby's Play House," given in April last, has called out several other contrivances, all having the same end in view, but reaching it by different methods—the care of that "well-spring of joy"—the baby. We give now plans by "D. W.," Minerva, Ohio, who thinks the affair described in April, may be useful in some cases, but proposes one that he thinks better suited for general use, especially if the mother must busy herself in the kitchen for most of the time. He writes: When our little boy was very small, a maiden aunt told us of an arrangement used by a relative in the country, which was simply a "store-box," with slats in front, and a good thick quilt in the bottom to keep baby from the cold floor, where, before he could walk, he was placed, and the mother knew he was out of danger and amusing himself. Having a small bedstead with high legs and posts, I sawed off the legs all but about two inches, and put on castors; I also took off some of the tops of the posts. This made a sort of box about 30×43 inches, with smooth sides some 12 inches high. It had a canvas bottom, and I placed over this a ½-inch board floor, and around the box, above the sides and ends, two railings made of ½ by 1-inch stuff. Here we had a movable play-house for baby, with good tight bottom and sides, giving him thorough protection from drafts and dirt. Besides, having castors, the mother could push it to or from the stove as the temperature of the room might require.

### The Baby's Hammock.

We had another arrangement, which, when baby was very small, its mamma thought very nice—a hammock. A frame was made of 1×2-inch stuff, about 20×32 inches. In the side pieces there were placed small railings, which kept the little fellow from rolling out, and it had a canvas bottom. This was swung from the ceiling with four strong cords, having iron rings which went over screw-hooks in the ceiling. There were two places in the ceiling

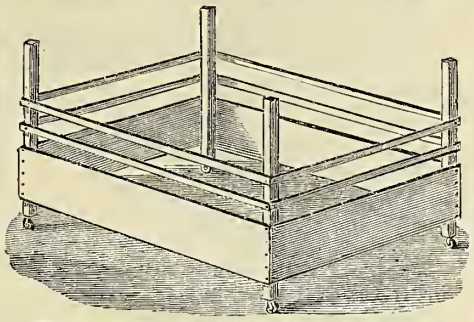


Fig. 1.—A PORTABLE HOUSE FOR THE BABY.

where it could be swung, one nearer the stove than the other, for warm or cold weather. With a soft, comfortable bed made on the hammock, baby would lie for a long time; and instead of having to sit down, in her busiest moment perhaps, when baby might become fussy, and rocking the cradle, all the

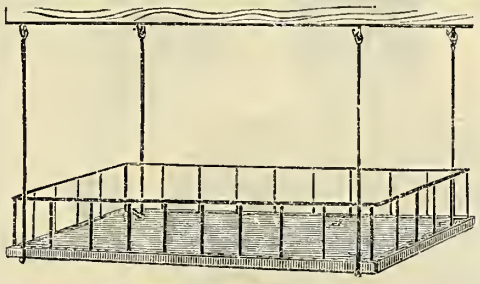


Fig. 2.—A BABY'S HAMMOCK.

mother had to do as she passed to and fro, was to give the hammock a push, and away it would go for several minutes, the swinging motion being better for the child than the rocking of the cradle. When the baby got too large, the hammock was dispensed with. We have still other Baby-tenders.

## Household Hints and Helps.

FRUIT DRYER.—If any our correspondents have a contrivance for drying fruit different from any that we have published, they will aid several who have sent us inquiries for the best fruit drier. Of course we do not refer to any of the patented affairs—those we know about, but something that any one can make from inexpensive materials.

ANOTHER COAL BOX.—We add to the several plans of coal boxes already given one of which the sketch was sent by D. W., of Minerva, O., to whom we are indebted for the Baby Tender. The accompanying section (fig. 1), is from front to rear. The lower part of the box is 15 by 26 inches, and sits upon a base 3 inches high. The whole height of the box is 26 inches, and the narrower, upper portion, is 15 inches square. Within is a sloping partition *d*, which divides the interior into two compartments, 1, for the coal, and 2, to which there is access by a door at *h*, holds kindlings and paper. At the top there is a lid, *g*, which opens as shown at *a*. At *e* is a slanting board, upon which the coal is shovelled up; above this is the sloping lid, *e*, which opens upward as at *b*. Our correspondent says that if the lid, *g*, is covered with zinc, it makes a very convenient place upon which to set hot articles.

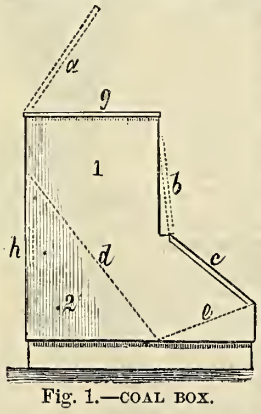



Fig. 1.—COAL BOX.

TRAPPING THE MOSQUITO.—"J. R. F." writes, referring to an article with this title in the *American Agriculturist* for November, 1878: "The above is all very well for Boston, but would be entirely inadequate in the land where the mosquito flourishes. Here is the way it is managed here by the ladies of the house, and which has proved very efficacious. They take a shallow tin vessel, as the lid of a blacking box, and attach it by a small nail, through the center, to the end of a broom handle or other convenient staff. Place in the vessel about a teaspoonful of coal-oil, and apply as recommended in the article referred to above. Instead of climbing on high chairs and chloroforming the insects by holding it three seconds to the ceiling, you will have the satisfaction of seeing them drop instantaneously into the bath prepared for them, where they are at once placed *hors de combat*, and that too before the trap comes nearer than two or three inches of the victim. This plan is cheap, simple, sure, deadly, and wonderfully expeditious. Try it. No patent on it."—By "coal-oil," we infer that our correspondent means kerosene. A small tin cup *wired* to a staff would be better, as it will be difficult to prevent leaking around the nail. If not kerosene, we will thank our friend to specify.

A SCOURING BOARD.—Our correspondent D. W. suggests a convenience, formerly more frequently seen in kitchens than at present, a board upon which to do the work of knife-scouring, with a box to hold the materials. The engraving, fig. 2, shows the affair. The board is 9 by 19 inches; the box is large enough to hold a Bath, or scouring brick, cloths, etc., and has a lid to shut down when not in use. A ledge all around the board to keep things from falling off and a ring to hang it by complete the affair. The use of knives with plated blades does away with much of the labor of scouring.

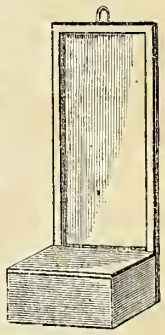


Fig. 2.

## BOYS & GIRLS' COLUMNS.

### The Doctor's Talks.

When I undertook to tell you some of the common facts about Gravity, the Center of Gravity, etc., I was surprised to find how difficult it was to say that which I wished to tell you, and not use terms which you would not be likely to understand, or to refer to things which I was sure you had not learned. If we talk about the *forces*, which act upon matter, we must in the first place know what is meant by matter; this led me to promise to tell you

SOMETHING ABOUT MATTER.

That some talks on this subject will be welcomed by many of you, I know from the questions that some of you have asked, and the father of some of the youngsters has written to ask that I accompany these articles by questions, so that he can make sure that his young folks understand it all. I can hardly do this, for no other reason than it would make these familiar Talks look too much like school lessons, and I don't want you to be prevented from reading them because they look too much like tasks... What I say just here is to

THIS PARENT AND OTHER PARENTS.

I have a great distrust of this question and answer teaching. If I were on a school-board, I would not allow a book to be used that had "questions" in it, or employ a teacher that would use the questions furnished by some one else. If a person is not so thoroughly at home in a subject that he can teach it not only without questions, but without a book, he should not teach at all. The book is for the scholar. A teacher should never open one in his class. If he has not his lesson many times better than the scholars—let him not teach.—But to come back to the young people. You will recollect that last month I could not get along without answering the question,

WHAT IS MATTER?

The briefest possible definition is: "Whatever occupies space."—A pea or a planet, will answer this definition. In this talk, I shall have to be rather dry—and give some definitions, but you must not be impatient for the experiments that I hinted could be given. We are now laying our foundation to build upon, and you know if the foundation be not solid, the structure will be shaky. It is not necessary for me to say that there are different kinds of matter—you know that already, it is as easy as bread and butter—two very unlike kinds of matter. Just now then we speak of matter in general—the kinds of matter will come along later. Now matter has certain properties or qualities, or peculiarities, which must belong in common to every thing that surrounds us; to a

grain of sand or a mountain, to a drop of water or an ocean. These are called

THE GENERAL PROPERTIES OF MATTER,

and before we go much further we must understand what these are. The first of these is SIZE OR MAGNITUDE. Every body—here I must stop, because we have come across a new word, *i. e.*, new to this Talk, and used in a definite manner. A *Body* is a definite portion of matter, without regard to its kind. A dew-drop is a *body* of water—so is Lake Superior. A marble is a *body* of stone, and so is Bunker Hill Monument. So a body is a portion small or large, of matter of any kind. Every *body*, then, occupies some space—it has length, breadth, and thickness. The smallest body that we can see with our microscopes, has these—indeed we cannot think of a body so small that it has not some size. You will have no difficulty in understanding that one of the properties of matter is size. Do you find this dry, and begin to want some experiments? Well, here is one. When you get up to-morrow morning, put on your right boot first—well. Then put your left foot into the *same boot*.—"You will not try it."—"Why not?"—"Because you *know* you cannot do it."—You then have learned one more of the properties of matter, without knowing that it was called

IMPENETRABILITY.

Your right boot stands upon the floor, put your left boot in just the same place without taking the other away. "What nonsense to try," you will say; and it will be useless, for no power on earth can do it, for it is one of the properties of matter that no two portions of matter can occupy the same space at the same time. Take a small-necked bottle and hold it under a stream of water, or try to pour water into it from a large-nosed pitcher, or put into the neck of the bottle a close-fitting funnel and try to fill it by pouring water into the funnel. Your bottle will fill very slowly. Why?—because the space is already occupied by one body—air, and the other body, water, can not occupy that space until the other is removed, and the hiss and gurgling that the air makes in getting out of the way of the water, tell the story that two bodies can not occupy the same space at the same time. Impenetrability is the name fixed upon to express this fact... If you would share your apple with another, you would cut it in two—I recollect when we used to do it by *bites*. Well, biting or cutting an apple only illustrates one of the properties of matter—a law of nature. Philosophers have fixed upon the word

DIVISIBILITY,

to express the fact that matter can be divided. You would think that this, as the French say, is something which "goes without saying." But how far can this division be carried? In this you touch upon a question that in former years philosophers quarreled over at a great rate. If there is but one apple and many boys, they can all be served, but the pieces will be small. If a whole army of boys, you could put the apple in a chopping tray, and make it fine enough to give a piece to each. If you take a bit of the apple the size of a pin's head and put it under the microscope, you can see that it is made up of cells too small to be seen by the naked eye; you know that had you a delicate instrument, and ability to use it, you could cut each cell in half, each half into other halves. How far could this go? So long as you could see a particle with the most powerful Microscope, that particle can be divided—you can not see a particle that can not be halved, or think of one so small that it can not be smaller.—But we are getting to very small things. It is one of the properties of matter that it can be divided.

HOW FAR THE DIVISION CAN GO

is not yet determined. To illustrate the extent to which matter has been divided, require figures that make one's head swim, for they take us into the trillions.

## Our Puzzle-Box.

DROP-LETTER PUZZLE.

(Every other letter is omitted.)

1. —y—m—d—n. A rough soldier.
2. —u—i—a—n—e. A court of justice.
3. —a—e—s—e—. A sort of bag or receptacle.
4. —c—p—n—i—e. Crooked.
5. —r—a—h—r—n—. Faithless.
6. —r—n—i—c—n—e. A substance produced by the Norway Spruce.

PI.

Celerygin si a nucsbeast indecanto ni het aft fo smalain, dan soal ni mose gavebleet eansetbuss, morf chlwh ti si tradeapes yb nieelach escreposs.

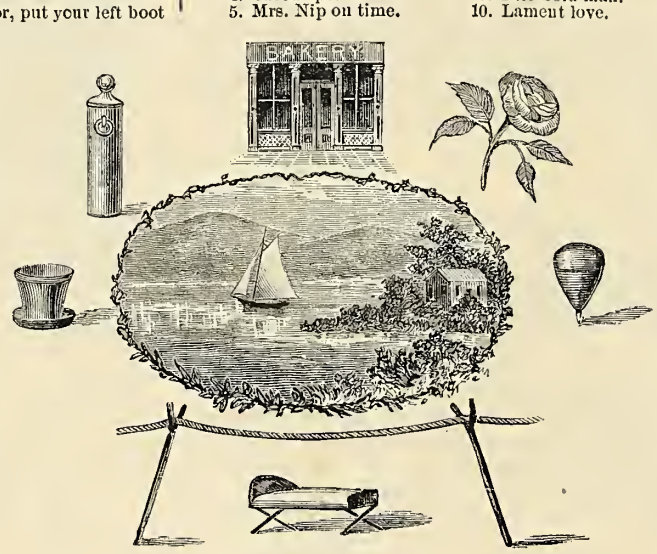
NUMERICAL ENIGMAS.

1. I am composed of 27 letters:
My 17, 16, 6, 14, 8, external appearance.
My 21, 15, 11, is a teh measure of liquids.
My 24, 4, 12, 5, is a covering.
My 11, 25, 13, 27, is a medley or mixture.
My 22, 23, 19, 20, is often very 3, 18, 2, 26, 10, and amusing.
My 1, 21, 11, 9, 6, 7, pertains to certain poetic feet.
My whole is the name of a book and its author.
LOUISE J. SPEED.

2. I am a word of 44 letters:
My 34, 23, 7, 31, is a fish.
My 1, 10, 26, 37, 6, 18, is a bird.
My 18, 2, 32, 20, 35, is to peddle.
My 19, 33, 21, is a Mexican tree.
My 44, 3, 29, 30, is to throw with violence.
My 5, 16, 34, 8, 25, is a river in Europe.
My 14, 13, 22, 35, is to delay, suspend.
My 15, 28, 39, is a kind of tree.
My 41, 38, 11, 35, is a plant, an herb.
My 7, 42, 31, is a little pot.
My 43, 34, 38, 36, is a mixture, a medley.
My 41, 38, 17, 40, is a reptile.
My 27, 4, 9, 32, 12, 21, is to bespatter.
My 24, 33, 19, 11, is to soil, to sully.
My whole is a good proverb. JACOB HALES.

ANAGRAMS.

1. O wise mare.
2. Coined, beside.
3. Eject a Saul.
4. Cased ape.
5. Mrs. Nip on time.
6. Singes deer.
7. Trip Laura C.
8. Sly chairs.
9. I tie bold man.
10. Lament love.



A METAGRAM PUZZLE.

METAGRAM.

(The puzzle called a metagram is made by selecting a certain word and making as many small words from it as possible. For instance, take the word "cream;" from it may be made the words a, arc, are, arm, ace, acme, acre, mace, mar, mare, me, etc., etc.)

Find a word of only four letters from which may be made two prepositions, a weight, a number, gained, two negatives, to possess, to draw, to know, to be used, and —in present circumstances.

CROSS-WORDS.

1. My first is in lion but not in bear,
My next is in trees but not in hair,
My third is in flower but not in fruit,
My fourth is in army but not in recruit,
My fifth is in orange but not in plum,
My sixth is in finger but not in thumb,
My seventh is in lark but not in bird:
My whole is a name you've often heard. H. S. F.

2. First in time but not in tune,
Second in May but not in June,
Third in come but not in stay,
Fourth in preach but not in pray,
Fifth in top but not in tall,
Sixth in whole but not in all,
Seventh in hill but not in mound,
Eighth in square but not in round,
Ninth in bought but not in sold,
Whole a famous cave of old. ISOLA.

EASY RHYMES.

(Fill the blanks with suitable words which rhyme.)

Once there was a little ——,
In nice clean clothes the child was ——,
Some tricks, he had, were pretty ——.
He used to call his father "——,"
Which sometimes made his mother ——
When he was naughty she was ——,
And when not naughty she was ——.
One time he scratched her with a ——.
His sister oft would shop and ——.

CHARADE.

See my first, a pretty little thing,
Led by my second with a string,
She would not trust it to a minion,
My whole, you'll find, is an opinion.

SCATTERED SQUARE.

(In the following verse you will find, in the first line, the first letters of the four words required for the square; the second letters in the second line, and so on; *e. g.*, by taking one letter from each line, you may make such words as *case, hart, tape, hide, maps, fear*, etc., etc.)

Come home, dear father,
We are waiting for you,
Supper is ready,
And mother is, too.

ANSWERS TO PUZZLES IN THE APRIL NUMBER.

EQUIVOCAL WORDS.—1. Account. 2. Back. 3. Cabin. 4. Face. 5. Grasp. 6. Fast. 7. Impress. 8. Jar.

PUZZLE.—Virginia (V—i—rg—in—ia).

PICTORIAL PUZZLE.—Central word "landscape," from which may be made sea, cans, caps, peas, asp, dance, spade, lace, lads, candle, panes, and ace.

HISTORICAL ACROSTIC.

B—unker Hill.
L—incoln.
A—lert.
C—arver.
K—idd.
H—enry.
A—rnold.
W—asp.
K—ane.

BLACK HAWK.

VERBAL DISTINCTIONS.—1. Adds, adze. 2. Ark, arc. 3. Bawled, bald. 4. Blew, blue. 5. All, ale. 6. Ayr, ere.

NUMERICAL ENIGMAS.—1. Light gains make heavy purses. 2. Edgar Allan Poe.

HIDDEN COINS.—1. Dollar. 2. Rouble. 3. Franc. 4. Lira. 5. Mark. 6. Sol. 7. Eagle. 8. Dime. 9. Yen. 10. Thaler. 11. Peso.

METAGRAM.—The word is *thread*, out of which may be made the different parts of speech, thus—A, the, Ah! ha! art, ear, earth, era, hat, hate, hart, hater, hatred, hare, herd, heart, heat, head, date, dart, death, dearth, rat, rate, tar, tare, tea, tear, thread, trade; are, ate, eat; had, hated, hear, dare, read, tread; dear, red, he, her; at.

BLANK DECAPITATIONS.—1. Grumble, rumble. 2. Keel, eel. 3. Glad, lad. 4. Fuse, use. 5. Grow, row. 6. Haunt (or taunt), aunt.

CROSS-WORD.—Weeping willow.

ANAGRAMS.—1. Irrigation. 2. Obstacles. 3. Distinguish. 4. Enemies. 5. Destroyed. 6. Political. 7. Sovereigns. 8. Afterwards. 9. Attractive. 10. Reasonable.

DROP-LETTER PUZZLE.—1. Uprightness. 2. Disconcerted. 3. Sacrilegious. 4. Importance. 5. Inebriated. 6. Legislature. 7. Meddlesome. 8. Correspondent.

PI.—When all the blandishments of life are gone,
The coward sneaks to death, the brave live on.

## "Wants a Microscope Badly."

An Ohio boy writes: "I read the description of the new Compound Microscope, and I want one very badly. I have used the Simple Microscope you sent last year, a great many times, and most of the boys and girls here have been delighted with what it shows. Now we must have the grand Compound Microscope, but how shall we get it? We tried to collect money enough, but all our pocket money put together don't make quite $2. I have a piece of potatoes, all my own, which I think will bring me more than $10, next fall, but I can't wait until then. We want the microscope this summer. How *shall* we get it?—Can't you give it as a premium, if we get you some subscribers?...."

[We would like to help our young friend, and a great many others who want the Microscope, for we know it would be very interesting and valuable: but it costs a good deal to make so complete an instrument. One little glass in it, not so large as a pea, requires a great many hours of careful grinding by a most skillful workman. The Publishers say it costs too much yet to give it as a general premium. But they allow us to say that if "Ohio Boy" or any other young reader of the *American Agriculturist*, will hunt up *ten* entirely *new* subscribers for the paper at $1.50 a year, and send the names and money to the Publishers, one of these new Microscopes will be presented to the boy who does so; or several can join in getting the club and own the Microscope together. If you can borrow ten dollars, the cost of the instrument, you can send that on and get it now, and then get the subscribers afterwards, and deduct the $10 from the last names sent in. Remember that the ten subscribers must be *new* ones, and must be obtained after June 1, 1879.—EDS.]

## The Doctor's Correspondence.

I am glad that the letters which come now, at the opening of spring, show that the awakening of the buds and blossoms has aroused the boys and girls, and nearly all the letters of late, are as generally about plants as those of a few months ago were about insects. Not that I do not like to have you ask about insects, but one does not want *all* insects. Where would the insects be if they did not have the plants to feed upon? Some of you think that I am caught this time, and will write to tell the Doctor that "the

CLOTHES-MOTH AND THE CARPET-MOTH

do not feed upon plants." Let us see about this. The Carpet-Moth—as many of your mothers know to their sorrow—feeds upon the carpet; the carpet is made of wool; wool grows upon the back of the sheep, and the sheep—what does that feed upon?—"Plants"—you will all say. So you see that it amounts to the same thing. The Carpet-Moths and many other insects, are a little particular about their food; they do not take the raw material in the form of grass and other plants, but they let the sheep and other animals do the rough work; prepare the food for them, so to speak. These had rather dine off of a few little threads of wool than to have a pasture full of the finest grass and the sweetest clover. Now let us stick a pin here—for it is something to think of.

ALL FOOD OF ANIMALS IS PRODUCED BY PLANTS.

You may not always be able to trace every kind of food that animals of all kinds eat, back to the plant that produces it, but when you find that you can not, you must ask me to help you. The above statement covers so much that it is quite as long a lesson as you need for the month, but some who have written to ask questions will

perhaps not think so. Here is one girl, who writes that she likes to read what I say about plants, and wishes I would tell you "some more

ABOUT WONDERFUL PLANTS."

When we think about it, is one plant any more "wonderful" than another? Some are more rare, others more strange and unusual, because they are in various respects different from the great majority of plants, but after all, what a wonder is the commonest plant! Its very first appearance, as it starts from the seed—the seed itself, what a mystery it is! Did you ever think of this? Suppose that all the plants that we now know and see about us, were only increased by cuttings, just as rose-bushes, geraniums, potatoes, etc., now are multiplied, by setting out a piece of another plant. Suppose a traveller should come from some far country with a spoonful of—we will say—cabbage seed in a vial, and tell us that each little brown hard grain would produce a cabbage! Who would believe him?—Then some learned society would look at the matter, see the seed planted, and in a few days would come a little plant—not at first much like a cabbage, but growing every day more and more like one, and at last this strangest of stories would be believed! How people would come from far and near to just look at the seed.

BARNUM NEVER HAD SUCH A SHOW

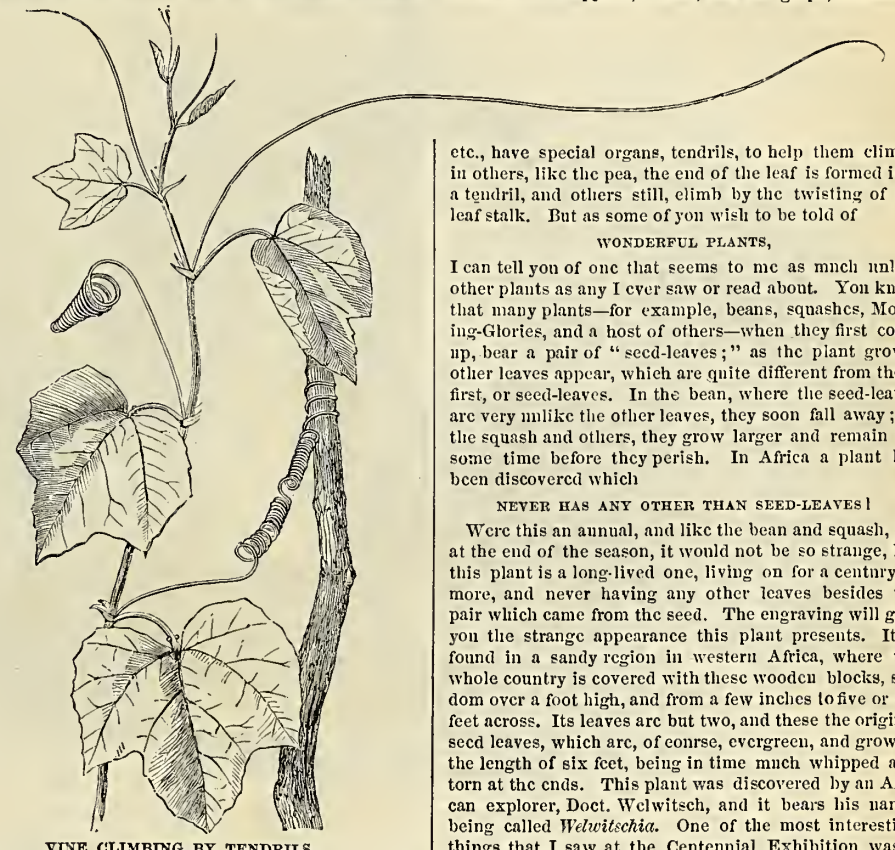
as the growing of a cabbage from one of these grains would be! If a seed—every seed, from one so fine as to be almost like dust, to one as large as a cocoa-nut—is such a wonder, still greater is the plant that comes from the seed, and will produce more like it. Look at any plant, a pink or an apple-tree—what is it doing? You know the green leaf, the fragrant flower, the delicious fruit—where do they come from?—"The plants," you will say.—But how?—"They grow."—That is just as far as many grown people get. Observe the plant; it stands in the earth where its roots are hidden; its stems and leaves are in the air where they receive the rain—these are all, the earth, the air, and the water, and not only pinks, apples, but all our food comes, and that of all animal life, from these. Ah, yes, there is one thing more—the blessed sunlight must help. Isn't there something wonderful about every plant when you look at what it is doing?—I may say more about this work of the plant as it builds up fruits, grains, and the thousands of other kinds of food—but just now I will tell you about

SOME CURIOUS MOVEMENTS OF PLANTS.

A few plants, like the Sensitive Plant, which shuts up its leaves at the slightest touch, and the Venus' Fly-trap, that brings the halves of its leaf together with a snap, quick enough to catch a lively insect, are well known examples of movement in plants; the motions in these are so quick as to be noticeable, and are often described as among the wonders of plant life. But there are other plants which move, very slowly, it is true, but not the less certainly. If you watch the different climbing plants you may see that the end of a bean-vine or a Morning Glory may be straight one day, and the next be tightly coiled around a pole or a string. It is not likely that any one twined the stem in this manner, and it must have moved of its own accord, so to speak, and gone round and round. It did this so slowly that however closely you watched you could not see it move, but the coils of the stem around the pole or other support show plainly that the motion has taken place. There are many interesting things to notice about the various climbing plants, but I can call your attention now to only the

PLANTS WHICH CLIMB BY TENDRILS.

Many a boy has hoed the cucumber, the squash, and the melon vines, thinking it a task, and not knowing that these vines had anything to interest him, much less that they could show him some very wonderful facts. Still it is true that every vine of this kind has a wonder—indeed, many wonders—to interest those who care to see. You know that cucumbers and related plants while left to themselves will spread upon the ground. You perhaps also know, that if given a chance, such as brush near at hand, they will climb upon it. You perhaps have noticed that when such plants do climb, they catch upon and hold to the brush or other support by means of long, slender twisted helpers, called *tendrils*. But you need not confine yourselves to plants of this kind, for many other climbers show the same thing; the grape-vine is also a good illustration, as are some of the climbers cultivated for ornament. A growing cucumber or squash is to be found in every garden, and is a good plant to watch.



VINE CLIMBING BY TENDRILS.

If you observe the tendril, the long, slender, wire-like shoot, whether on one of these, or on the grape-vine, you will notice that it is at first long and nearly straight, but, as shown in the engraving, with a slight hook at the end. It is a fact, which you may observe, if you watch closely, from time to time, that a tendril has a slow, sweeping motion, and when its hooked end touches a twig, or a part of its own plant, it catches and holds fast to it. Then there happens a very curious thing, the tendril being made fast at the ends, begins to twist itself into coils, and thus brings the stem of the plant closer to the support. There is something very peculiar about this coiling which I wish you to especially notice. If the tendril coiled all in one direction, it would be very badly twisted, so you will find that when a tendril is fixed at one end, it is coiled in two directions; one part will be coiled from left to right, and the other from right to left, to offset the twisting of the other part. If the end of the tendril is not made fast, of course the whole can coil in one direction. The plant in the engraving shows what you may observe in many vines; a straight tendril, with a slight hook in the end, in search of something to catch upon; a tendril not fastened at one end, twisted all one way, and a tendril which has caught and made fast, and is twisted in both ways.

WATCH YOUR CLIMBING PLANTS.

You will find that some, like the bean, twine about the pole or other support; others, like the grape, cucumber, etc., have special organs, tendrils, to help them climb; in others, like the pea, the end of the leaf is formed into a tendril, and others still, climb by the twisting of the leaf stalk. But as some of you wish to be told of

WONDERFUL PLANTS,

I can tell you of one that seems to me as much unlike other plants as any I ever saw or read about. You know that many plants—for example, beans, squashes, Morning-Glories, and a host of others—when they first come up, bear a pair of "seed-leaves;" as the plant grows, other leaves appear, which are quite different from these first, or seed-leaves. In the bean, where the seed-leaves are very unlike the other leaves, they soon fall away; in the squash and others, they grow larger and remain for some time before they perish. In Africa a plant has been discovered which

NEVER HAS ANY OTHER THAN SEED-LEAVES!

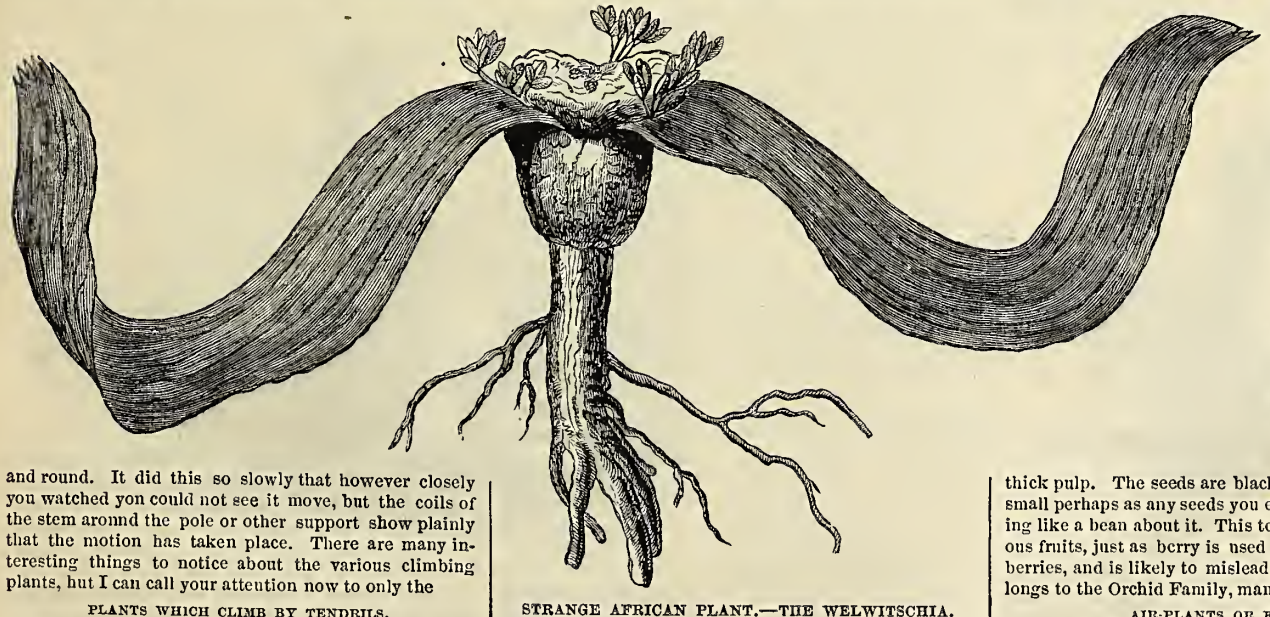
Were this an annual, and like the bean and squash, die at the end of the season, it would not be so strange, but this plant is a long-lived one, living on for a century or more, and never having any other leaves besides the pair which came from the seed. The engraving will give you the strange appearance this plant presents. It is found in a sandy region in western Africa, where the whole country is covered with these wooden blocks, seldom over a foot high, and from a few inches to five or six feet across. Its leaves are but two, and these the original seed leaves, which are, of course, evergreen, and grow to the length of six feet, being in time much whipped and torn at the ends. This plant was discovered by an African explorer, Doct. Welwitsch, and it bears his name, being called *Welwitschia*. One of the most interesting things that I saw at the Centennial Exhibition was a specimen of this plant, with a trunk about two feet across. It was in the Portuguese collection, but being without a label but very few who saw it knew what it was....Charley Wilson, in Mass., wishes me to tell him

"ALL ABOUT THE VANILLA-BEAN,

how large are the seed, and is it really a bean?"—Charley is more cautious than a man who called on us a few years ago, to know where he could get Vanilla-beans. I found that the man was on his way to Florida, intending to go into the cultivation of Vanilla-beans, which he supposed grew like Limas or other pole beans, and was all ready to start except getting his beans for seed. The poor fellow was much disheartened when I showed him that the Vanilla-bean was not a bean, and probably would not grow in Florida at all. The useful portion of Vanilla is the dried seed-pod; this is 8 to 10 inches long, about as thick as a lead pencil, but wrinkled and flattened—and within contains the seeds, which are surrounded by a thick pulp. The seeds are black and shining, and are as small perhaps as any seeds you ever saw. There is nothing like a bean about it. This term bean is used for various fruits, just as berry is used for things that are not berries, and is likely to mislead. The Vanilla plant belongs to the Orchid Family, many of which are

AIR-PLANTS OR EPIPHYTES,

that is, plants which live upon trees, without any connection with the ground. Vanilla is a climber, attaching itself to trees by means of roots thrown out at every joint, and though it at first has roots in the ground, it can grow without these. It is easy to see that a plant of this kind can only flourish in warm and damp forests, and the places where it can be cultivated are very few indeed.



STRANGE AFRICAN PLANT.—THE WELWITSCHIA.

## Our Oldest City.

When we read, in history or in fiction, of the city walls and the watch towers, the strong-hold and its draw bridge, portcullis, and moat, and all, then of men who wore armor, and went in search of impossible things, the story takes us back, far back into the past ages. Yet we have here, in the United States, in this busy, very modern country, a city, which has all these old-time surroundings. It was built long before New York, Boston, or Philadelphia, and it still stands with enough of its old-time peculiarities remaining, to be unlike any other American city. You, of course, know that this oldest of our cities is Saint Augustine, or, as it is now spoken, San Augustine. We speak of it as our oldest city, the first fort having been built in 1565, but it has an antiquity far beyond that. The city walls, the fort, and the principal buildings are of a coarse material, called *coquina*. (pronounced *ko-kee-nar*). Examine this, it does not need a glass, you will see that this, which is used as a building material as if it were a stone, is made up of bits of small shells. Every little shell in this mass has cost the animal that once lived in it, years to build up, thin layer after thin layer; then, after the animals have died, the shells have been broken up by the action of the sea, and in the course of time slowly cemented together, to form building material of many feet in thickness; you can see that, however old the city itself may be, the material of which it is built, takes us so far back into the past that we can not express it by years, and can only say that this material was prepared for the building of the city "in early times." Should you ever go to San Augustine, you would find this *coquina* at every turn, for it was not only used in the early times for building, but for ornamental-work; as when first quarried it is soft, though it becomes very hard upon exposure, it can be easily wrought with a hatchet, and with such tools it was worked into fence-posts, fountains, vases, and the like. However far into the past thinking over the material of which the city is mostly built may carry us, there is much that is curious in its history as a city. If we were now to read of a young man who started off in search of a fountain, the waters of which should give those who bathed in it, perpetual youth and beauty, we should laugh at the folly of the person. Yet it is only a little over 300 years ago that a Spaniard, Ponce de Leon, having heard of such a fountain, started out in search of it. He started from Porto Rico and visited all the neighboring islands, and at last discovered what he thought to be a large island, and landing not far from the present San Augustine, he took possession of it in the name of the King of Spain, calling it, from the fine vegetation, Florida, or the land of flowers. This all happened in 1512, several years before any settlement was made. San Augustine was first settled in 1565, and its early history is one of wars, taking and retaking by the French, the Spanish, the English, and the Indians. It would seem strange to come to any of our modern cities or towns, and find it surrounded by a wall, and could only be entered at certain places by gates. Yet this was the case with San Augustine, and the old gate, shown in the engraving, is still one of the principal entrances on the land-side—we say gate—but it is more properly the gate-way; the gate itself, which formerly closed this against enemies, having long ago disappeared. Besides the city wall, San Augustine has a striking relic of the olden times in its old fort, San Marco. This is also built of the shell-stone, coquina, which is found in the greatest abundance on Anastatia island; this is a long, low island, which is not far from shore, and forms a breakwater to the harbor. The first Spanish settlers built a fort as early as 1565, which was taken by the English 20 years later, they then gave up Florida, and do not seem to have made any attempt to settle there for many years. The Spaniards, however, again returned, and this time built the present fort. It was over a century in building, and was not finished until 1756. But there is a sad story belonging to this fort; these old Spaniards knew how much easier it was to have work done by others than to do it themselves, made slaves of the Indians, and all the labor of building this fort was done by Indian slaves. The poor Indians had a hard time of it, taken from their idle life in the mildest of climates, and set at hard work. The interior of the fort has been made over anew, and furnished with modern guns, and a new name—Fort Marion—it retains enough of its ancient peculiarities to show how it appeared a century ago. It had its draw-bridge, which could be raised by heavy chains, and thus cut off all entrance, exposing only the moat or broad and deep ditch which surrounded the fort. The friend who passed a portion of a winter in this oldest of our cities, and sent us a sketch of the city gate, also sent some drawings of the fort, two of which are given here. One of these, figure 2, shows the watch tower, from which there is a fine outlook seaward, and also inland. Fig. 3 shows a quaint little sentry box, curiously placed upon a corner, to allow the sentinel to look in two directions, and be safe from the arrows of the Indians. We do not build forts in this manner now. Such affairs as this watch-tower and sentry box would make altogether too good marks for our long-range cannon, one ball from which would shatter them into rubbish. But we are glad that these things are left to remind us of the early times. One who visits San Augustine now does not enter by permission at a particular gate, but goes into the city by rail, and many of the ancient buildings are now modernized, and used as stores. Still this old city grows very slowly; it has very little of commerce or manufactories, and its chief business comes from invalids and others who find in its mild climate, its healthful sea air, and its quiet, a pleasant change from the severity of northern winters.

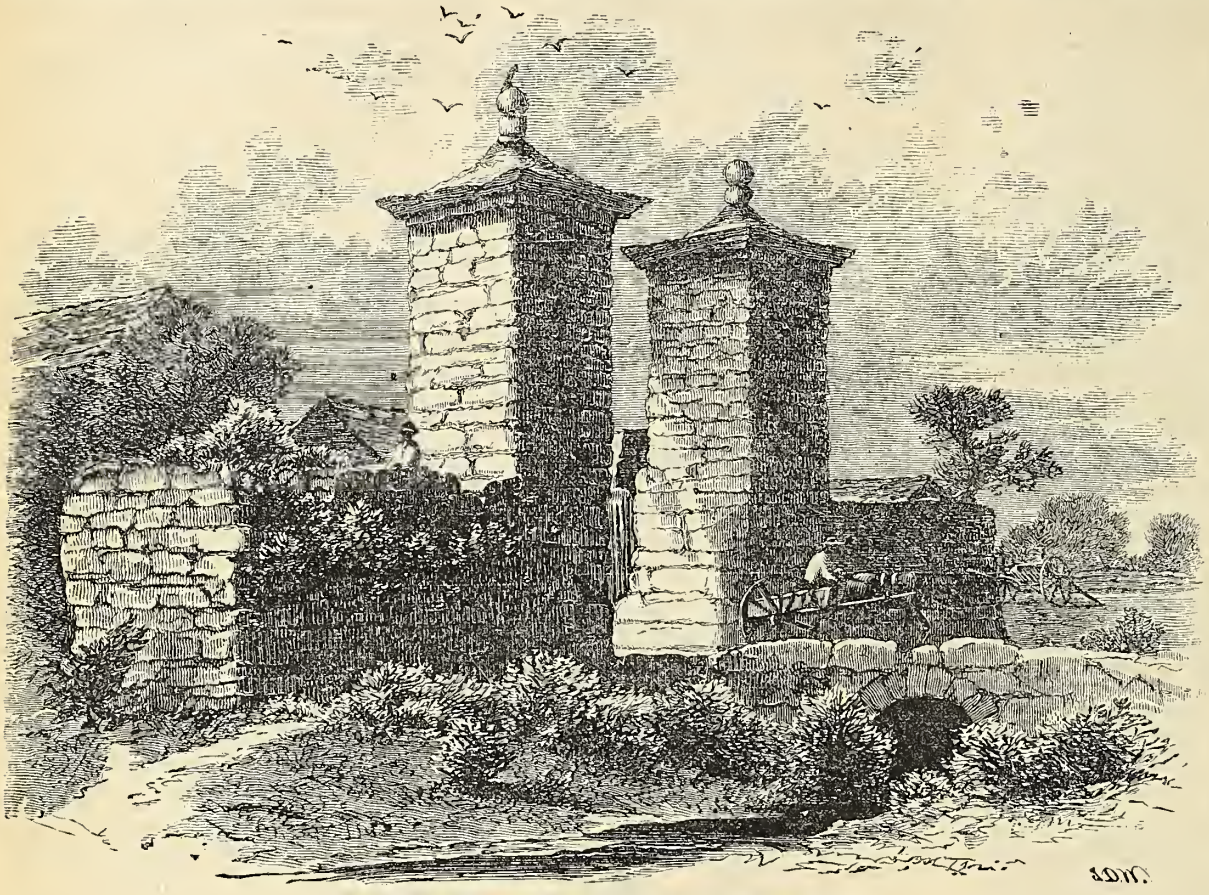


Fig. 1.—THE ANCIENT GATE-WAY AT SAN AUGUSTINE, FLA.

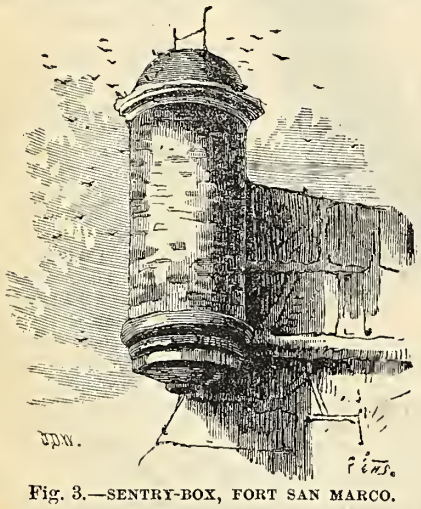


Fig. 3.—SENTRY-BOX, FORT SAN MARCO.

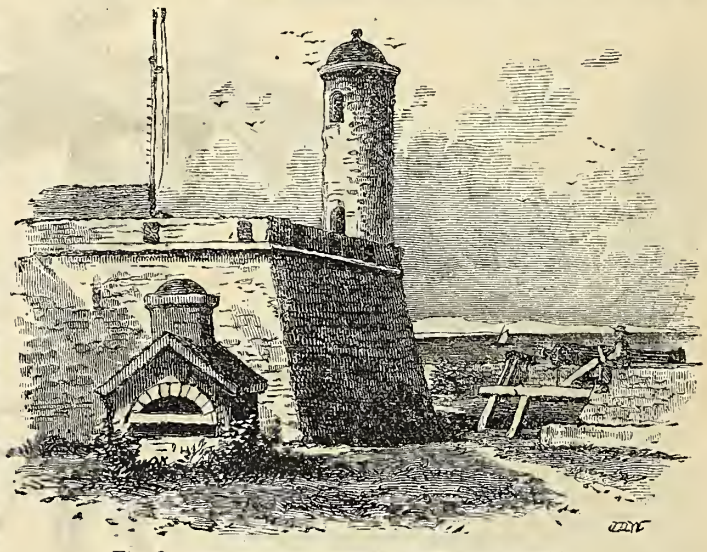


Fig. 2.—THE WATCH-TOWER OF FORT SAN MARCO.

The following actually occurred in a grammar school in this city lately: Subject under discussion Joan of Arc. Schoolmaster—"Now, Miss Jones, what was Joan of Arc Maid of?" Miss Jones hesitated in answering. Miss Jones, did you hear my question? What was Joan of Arc Maid of? Miss Jones—"Made of—dust, sir," she answered.

OFFICE OF FISK & HATCH,
No. 5 NASSAU STREET,
NEW YORK, MAY 17, 1879.

# FINAL SALE OF FOUR PER CENT BONDS.

## *Funding of the Ten-Forties and the remainder of the unredeemed Five-Twenties.*

Having a large interest in the recent subscription made to the Treasury Department for the final negotiation of the Four per Cent. bonds remaining unsold, we are prepared to furnish the bonds in large or small amounts, Coupon or Registered, in all denominations, for cash, or in exchange for called Five-Twenties, Ten-Forties, or other Government bonds, on the most favorable terms, and to extend to investors and institutions the best available facilities for purchase or exchange.

A full supply of Coupon Bonds will be kept on hand at our office for immediate delivery in denominations of $50, $100, $500 and $1,000.

Registered Bonds in denominations of $50, $100, $500, $1,000, $5,000, $10,000, $20,000, or $50,000, registered in the name of the purchasers, will be delivered as soon after the receipt of the order as the certificates can be received from Washington.

Exchanges will be made with National Banks for bonds held to secure circulation, and the Four per Cent. bonds will be placed with the Treasurer of the United States, and the Five-Twenties, Ten-Forties, or other bonds withdrawn, without additional cost to the banks, and without the employment or advance of any money on their part being required.

Orders or enquiries by mail or telegraph will receive careful and prompt attention, and parties desiring to make their purchases or exchanges in this way, will receive all the advantages that their personal presence in the market could secure.

The remarkable success of the Treasury Department in the negotiation of the Four per Cent. bonds during the last four months, within which time over $500,000,000 have been sold, affords occasion for universal congratulation among all patriotic citizens, whatever may be their personal disappointments as bondholders, that their bonds bearing higher rates of interest than four per cent. have not been permitted to run for a longer period, and that the life of their investments in Five-Twenties and Ten-Forties has been so rapidly and unexpectedly cut short.

It demonstrates, moreover, that the credit and borrowing power of the United States Government has become fully and firmly established on a basis of less than four per cent. per annum, and, in connection with other conditions incident to it, indicates that the Four per Cent. "Funded Loan" of the Government must shortly advance in this and the other financial markets of the world to a considerable premium above par.

In addition to the $194,000,000 of Ten-Forties called in by the Secretary of the Treasury, the reinvestment of the proceeds of which would absorb the entire amount of the Four per Cent. bonds, recently subscribed for, and all the $10 refunding certificates which the Secretary reserves for popular subscriptions, it was estimated that not less than $100,000,000 of the Five-Twenties called in were, at the time of the final subscription for the Four per Cents, still unredeemed in the hands of investors and institutions, the proceeds of which must seek reinvestment within the next ninety days.

Of the $121,000,000 Four per Cents., taken by the First National Bank, ourselves, and others, over $75,000,000 have been disposed of in less than thirty days, to permanent investors. At this rate the balance will be absorbed long before July. With the large demand from London; with the demand from holders of the maturing Five-Twenties; with the amounts being taken in exchanges by holders of Fives and Sixes of 1881; with the increasing demand from the people for cash, the amount of Fours available to supply the holders of Five-Twenties of 1867 and 1868 and Ten-Forties maturing in July, is daily becoming smaller; and therefore, those who delay exchanging must not be disappointed if they find the market price of the Fours steadily advancing.

The immense quantities of gold poured into the coffers of the world the past ten years; the enormous amounts of values wiped out of existence; the depreciation in state, city and railroad bonds and stocks; the losses by savings banks and institutions of trust the world over; the fact that the flash of the cable and telegraph wires, and the speed of the locomotive and steamer have quadrupled the capacities of capital, while the reduction in the cost of material, machinery, labor and products, has largely reduced the requirements of business, even with the fullest activity and prosperity in business enterprises—all tend to show that we have entered on a long era of cheap money, while the marvelous drawing together of the nations of the earth in financial matters, makes the bonds of the United States Government almost as homelike in England, Germany and France as their own national bonds.

FISK & HATCH.

**Makers of Gilt Edge Butter.**
Or those that desire to become such should use **The Perfect Creamery**, advertised in another column. Butter made by its use is always rated Gilt Edge, and commands ready sale and an extra price.

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**Soiled Stockings!**
**SHOE BILLS DOUBLE IN AMOUNT WHAT THEY NEED BE.**
All these ills prevented by purchasing for children's wear either the
**BEAUTIFUL BLACK or SILVER TIPPED SHOES.**

**Improvement for 1879.**
**THE SAFETY HOT BLAST OIL STOVE.**
☞ Does not heat the house. Perfect for all kinds of Cooking and Heating Irons. Always ready and reliable. The most satisfactory Stove made and the Cheapest. ☞ Send for circulars.
**The Whitney Manuf'g Co.,**
1123 CHESTNUT ST., PHILADELPHIA.

**FINE TEAS** supplied to *consumers* at prices *lower than ever known before.* These *fine qualities* seldom reach the interior, being sold only in large cities and among the very wealthy. Send for *reduced price-list*, and compare with other houses.
**CONSUMERS' IMPORTING TEA CO.,**
*P. O. Box* 4236. **8 Church St., N. Y. City.**

**ASK YOUR WATCHMAKER FOR**

**AND NOT WEAR OUT.**
By mail 30c.—**AUTOMATIC** Eye Glass Holder, by mail 25c.—**Birch's Pat. Key Ring**, 10c.—Circulars free.
**J. S. BIRCH & CO., 38 Dey St., N. Y.**

**THE HARTFORD AUTOMATIC PUMP.**
**Water Driven to any Hight and Distance by Compressed Air.**
Country Houses Supplied Cheaply and Certainly for Bath Rooms, Water Closets, Hot and Cold Water Faucets, etc.
**Plenty of Fresh Water for Stock on Farms.**
The best Pump for Irrigating, supplying Railroad Tanks, and for Mining purposes.
For Circular and Price-list address
**EZRA BROOKS,**
**Manufacturer of the Hartford Automatic Pump,**
(Successor to the Hartford Pump Co.,)
Cor. Sigourney and Cushman Sts., Hartford, Ct., U. S. A.

**Rectangular and Square BOX CHURNS**
**Cheapest and Best.** No inside fixtures, and *always reliable.* Six sizes of each kind made. Three sizes of the *Lever* Butter Worker made. Best material used, and every Churn and Butter Worker *warranted* exactly as represented. One Churn at wholesale where we have no agent. *Send Postal for Circulars.*
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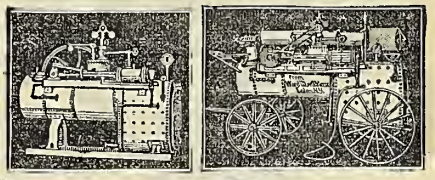
**The Best, the Cheapest.**
**GENUINE WALTHAM WATCHES**
IN SOLID GOLD AND SILVER CASES ONLY.
*NO BRASS, NICKEL, OR PLATED CASES ARE EVER SOLD BY US.*
**PRICES GREATLY REDUCED.**
Silver Key Winders, **$9.90**.....former price, **$13**
Silver Stem Winders, **$13.70**.....former price, **$18**
Gold Key Winders as low as..... **$38**
Gold Stem Winders as low as..... **$50**
Write for our PRICE LIST, which describes all the various grades and sizes, with prices of each, and explains our plan of sending Single Watches without risk to any part of the country, no matter how remote. Address
**HOWARD & CO.,**
**264 5TH AVENUE, NEW YORK.**
We send the Price List free of postage to all who write for it, except to those who want to act as agents or those who ask for discounts. We have no agents, and make no discounts whatever.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**FOR 1878 AND 1879.**
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☞ *Our Asbestos Liquid White has been adopted for interior and exterior work of the U. S. Capitol at Washington.*
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**ASBESTOS ROOF PAINT.**—Brown, slate, gray, and cream, for tin and shingle roofs, iron work, fences, outbuildings, etc. *We guarantee this to be a better article than has ever before been offered to the public for similar purposes.*
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Special Prices to large consumers. Samples of Colors and Descriptive Price-Lists by Mail.
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Sole Manufacturers of **Genuine Asbestos Roofing, Boiler Coverings, Steam Packing, Sheathing, Cements, Coatings,** etc.

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Has found its way into high places the world over, and Medical Journals and Physicians give it their approval.
WOOLRICH & CO., on every label.

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**Prickly Comfrey Roots.**—15 cts. oz., 40 cts. ¼ lb., $1.00 lb., by mail, with directions for culture.

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**Blunt's White Prolific Corn.**—Our seed of this variety is very extra, having yielded from 80 to 100 bushels per acre the past season. Price per bush., $4.00; ½ bush., $2.50; peck, $1.50; ½ peck, $1.00; qt., 50 cents. By mail, pkt., 10 cents; 50 cents per lb.; 4 lbs., $1.50; selected ears, 25 cts.

**Kenney's Early Amber Sugar Cane.**—By mail, 60 cents per lb., 3 lbs. $1.50. By express, 10 lbs. $3.50, 20 lbs. $6.00.

**Green Prolific Pickling Cucumber.**—A new variety; selected with great care by one of the largest growers of pickling cucumbers in the country; with good culture 200,000 can be grown on one acre.
1 ounce packets, 20 cts.; 4 oz., 45 cts.; lb., $1.40.

**Silver Hull Buckwheat.**—The best variety in cultivation. Per bushel, $2.00; ½ bush., $1.25; peck, 75 cts.; 1 lb., by mail, 40 cts; 3 lbs., $ .00.

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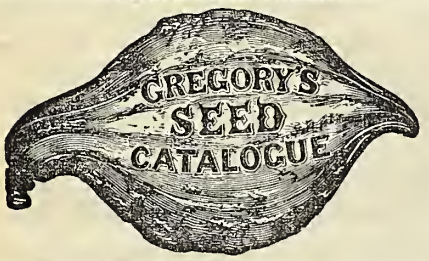


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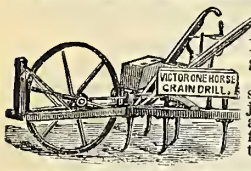


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**for sowing Wheat, Rye, Barley,** in fallow ground or in standing corn.
Force feed; simply constructed. The five hoed is adjustable for different widths, and is just what every small farmer ought to have, saving the price of a two horse drill.
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**BEAUTIFUL EVER-BLOOMING**
# ROSES
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**NEW ROSES.**—Madame Welch—Tea. Mabel Morrison—H. P. Queen of Beaders—Bourbon. $1.00 EACH.
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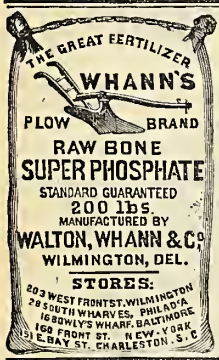


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**DEALERS IN**
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Roller Mowers, 7 Sizes. Side Wheel, 6 Sizes.

Back Wheel Mowers, 5 Sizes. Horse Mowers, 4 Sizes.

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*Send for Illustrated Price-List.* **NEWBURGH, N. Y.**

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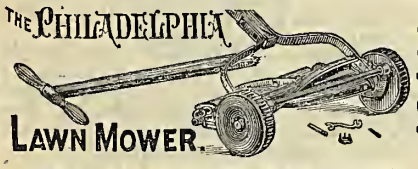

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AGENTS Wanted.

Best in use for mowing away hay in barns or stacking, being adapted for either purpose. Has no equal for **simplicity, durability** and **good work.** The track is **self-adjusting** and is easily put up. Will be sent to responsible parties on trial. **Send for special terms for introduction.** Price within reach of all. Send for descriptive Circulars and Price List to **E. L. CHURCH & CO.,** Manufacturers, Harvard, McHenry Co., Ill.

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## Gardner's Railway Pitching Apparatus.

Consisting of Carrier, Grappling Fork, Pulleys, and Hooks. For unloading Hay, Grain, Beans, Corn Stalks, loose or in bundles, etc. Can be used in any barn. Also, Improved Stacking Apparatus. Send for Circular, and get valuable information.

**E. V. R. Gardner & Co.,**
Johnson's, Orange Co., N. Y.

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## The Anti-Friction Hay Carrier,

elevates perpendicularly, and conveys horizontally any desired distance. **Many Thousands in Use.** The cheapest, strongest, most convenient, and durable Carrier made.

**THE NOYES GRAPPLE FORK** handles fine, coarse, or loose hay; is cheaper than a harpoon, easy to handle, strong, durable, and guaranteed the best Horse Fork made.

Send for sheet containing 23 ENGRAVINGS AND DRAWINGS—designs for tracking and arranging barns, bill of lumber, and full details for making Field Stacking Frame, etc., etc.

**U. S. Wind Engine & Pump Co., Batavia, Ill.**

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## RAILWAY PITCHING APPARATUS.

**Chapman's. Best Fork and Conveyor in use.** Unloads and carries Hay, Grains, &c., over deep mows, into sheds, barns, &c. Saves labor, time, money. Sent on trial. Circulars sent. Agents wanted.

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**FARMERS,**

## LOOK AT THIS!

The undersigned have come into possession of the following articles, which they will dispose of at a BARGAIN.

| | LIST PRICE. |
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| 1 Prairie King Gang Plow, | $90.00 |
| 1 Prairie King Sulky Plow, | 78.00 |
| 1 Champion Walking Cultivator, | 32.00 |
| 1 Turtle Pulverizing Harrow, | 17.00 |
| 1 Flexible Smoothing Harrow, | 12.00 |
| 1 Star Sub-Soil Plow, | 16.00 |
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| 1 Victor Horse Hoe, | 12.00 |
| 1 Champion Horse Hoe, | 12.00 |
| 1 Eagle Corn Planter, | 15.00 |
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| 1 Clipper Wheel Hoe, | 5.50 |
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These goods are samples made by the best manufacturers, have never been used, and are ready for immediate use. Address RAND, AVERY & CO., 117 Franklin St., Boston

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## Union Railway Horse Power.

**AND PREMIUM THRESHER.**

This very superior power produces much more power with far

**LESS ELEVATION**

than other railway powers. Send for descriptive circular.

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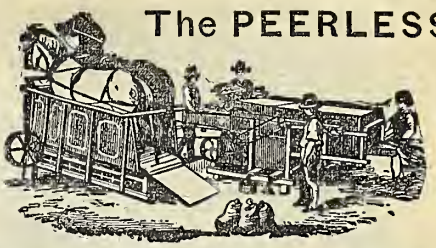
## The PEERLESS

1854.  1879.

**Thresher and Cleaner—Clover Huller and Cleaner—Straw-Preserving Rye Threshers—Railway and Lever Powers—The Howland Feed Mill—Grain Fans and Corn Shellers.** Our machines are guaranteed to work well, and have received the highest testimonials and cannot be excelled.

**B. GILL & SON,**
Trenton Agricultural Works, Trenton, N. J.

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## PORTER'S Wire Cable DERRICK

AND Champion HAY Carrier

**At Work in the Field.**

Stacks built by this process will turn rain, as they are always full in the center, insuring bright and sweet feed. Thousands of farmers testify to its superiority. Easily set up and operated. Send for circular to

**J. E. PORTER, Ottawa, Ill.**

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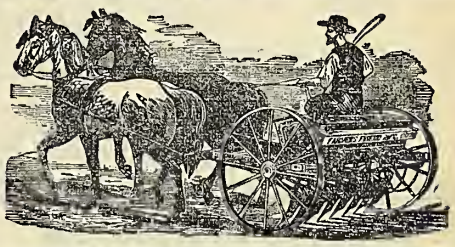
## THE FARMERS' FRIEND

## Grain and Fertilizer Drill.



Awarded the Gold and Silver Medals of the late Paris Exposition, the Gold Medal of the Agricultural Society of Scotland, the most important medals and highest honors of our own country, and has the approval of grain growing farmers everywhere.

The **Cone Gearing, Double Force Feed** and Patent Fertilizer Sower, make it always accurate and reliable.

The Grass Seed Sower is a **force feed,** and is furnished without extra charge.

For circulars, etc., mention this paper, and address

**FARMERS' FRIEND M'F'G CO.,**
Dayton, Ohio.

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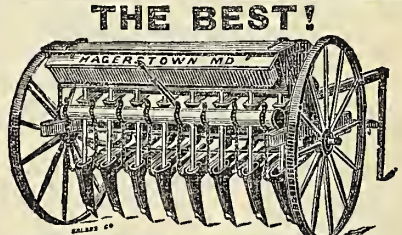
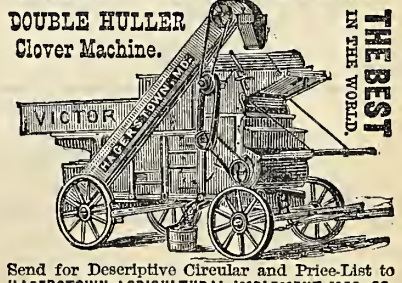



## THE "HAGERSTOWN" DRILL

**Most successful** Grain-Drill in use. Can change quantities of seed *while in motion.* Strong, durable, and simple, with Pin or Gum Spring Hoe and Grass Seed Sower. **Standard Fertilizing Drill.**

## THE "VICTOR"

**DOUBLE HULLER Clover Machine.**




Send for Descriptive Circular and Price-List to
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*State where you saw advertisement.* Hagerstown, Md.

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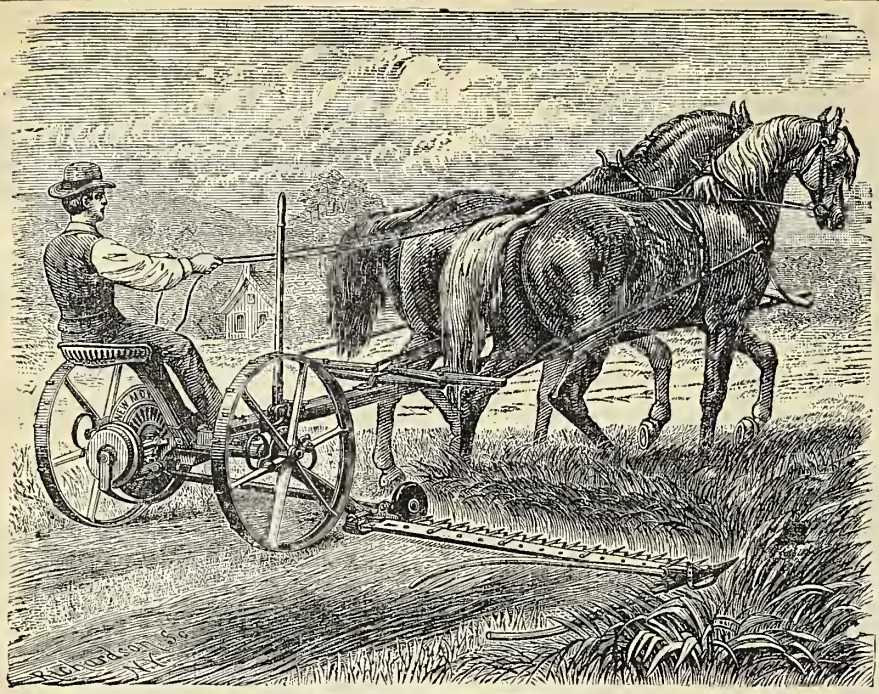
**LOOK!** At our new Catalogue of **AGENT'S NOVELTIES** mailed free,
T. J. HASTINGS & CO., Worcester, Mass.



NEW MODEL MOWER AT WORK.

# ADRIANCE, PLATT & CO.,

**Manufacturers of Buckeye and Adriance Mowers and Reapers,**

**Manufactory, Poughkeepsie, N. Y.** **165 Greenwich St.** (near Courtlandt St.), **New York.**

The **Buckeye** has for nearly a **Quarter** of a **Century** held its position as

## THE LEADING MACHINE.

Its **principles of construction** are the **only** ones that **have stood the test of time,** surpassing all others in **Simplicity, Strength, Lightness of Draft, Ease of Management, Durability,** and **Capacity to do Good Work anywhere.**

The **Adriance Reaper** has **proved its superiority** to all machines of its class.

It is **Light, Strong, Simple, Easily Operated, Completely Under Control of Driver, Perfectly Balanced.** Has a Cased Gearing, **Folding Platform. No Weight on Horse's Neck. No Side Draft.**

**Prices Reduced** to the lowest point at which the **High Standard of Excellence** in **Material** and **Workmanship** can be maintained. Descriptive circulars forwarded by mail.

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Stands unequaled for ease of team, the Horse-Power runs, as shown by the records, with **more than one-third less friction** than any other. The only machine awarded a

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on both Horse-Power and Thresher and Cleaner, at the Centennial Exhibition, as shown by Official Report, which says: "**For special features in the Power to secure light running and minimum friction. For the ingenious form of the Straw Shakers, which insure the proper agitation to separate the grain from the straw.**" For Catalogue, Price-List, and full report of trial, address

MINARD HARDER, Cobleskill, Schoharie Co., N. Y.

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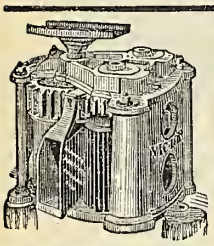

## Victor Cane Mill

And

## COOK EVAPORATOR

**The BEST and only standard machines.**

FIRST PREMIUM AT 125 STATE FAIRS.

**Grand Medal at Centennial Exhibition.**

**Over 48,000 sold.**

Safe, Reliable, Economical.

**Cane Growers can't afford to risk Crops**

With light, weak, unfinished mills, liable to break in the midst of the season. They can't afford to **waste** crops with mills that don't press out all the juice, or evaporators that make syrup and sugar **unfit for market,** and too little in proportion to the labor and fuel they require.

**Blymyer Manufacturing Co., Cincinnati, O.**

Steam Engines, Threshers, Bells. *Circulars sent free.*

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## Prout's Hoeing Machine.

Worth double its cost to any farmer for hoeing Tobacco, Cabbage, Corn, or any other hoed crops. Has been in use in the Connecticut Valley for the past four years, and has more friends than any other implement for hoeing by horse-power. For further particulars, send for Ill'd Catalogue to

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Also Manufacturers of Bullard's Improved Hay Tedders, Feed Cutters, Plows, etc., etc.

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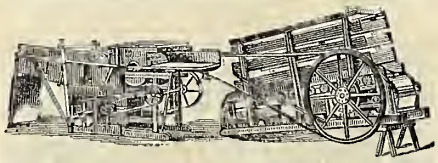
Awarded a MEDAL and DIPLOMA OF HONOR, at the International Exposition.

**HEEBNER'S IMPROVED**

***Level Tread Railway Horse Power and Speed Regulator.***



Horses' feet stand level on floor of Power; labor and fatigue of the horse diminished; power increased; money saved. Smooth-shod horses work on them better than rough-shod on the old style Powers; have a slower walk for horse. These Powers are single or double-geared, for one or two horses, with the only successful SPEED REGULATOR in the world. We also have the simplest, most desirable and cheapest Threshers, Separators, and Cleaners, for one or two horses. These Powers and Machines will do more work, with less labor for horse or operator, than any other; pronounced superior by every purchaser. Have on record in our office a large list of First Premiums, Diplomas, and Medals of State and County Fairs in the United States. We are the Proprietors of the Patents and Sole Manufacturers. ESTABLISHED IN 1840. ☞ Send for Circulars, and learn of the great success of these Machines. Address

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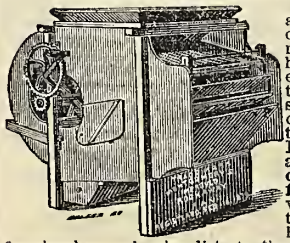
## MONTGOMERY'S

# Improved Rockaway Fan.

**222 First Premiums. 15 Silver Medals.**
**Gold Medal at Md. Institute in 1878,**
and 15 First Premiums at other Fairs.



No good Farmer can afford to be without one of these Fans! This universally known Fan has been victorious in every contest, and has the approval of thousands of Farmers all over this country. It is the best and cheapest Fan made for the farmer and planter. It is the only Fan that will effectually take out of wheat the great Virginia trouble "Partridge Pea." Prices reduced. Send for circulars and price lists to the manufacturers.

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**68 S. Calvert St., Baltimore, Md.**

Manufacturers and Dealers in Standard Goods, Gen'l Agts. for **Cornell Shellers, Big Giant Corn and Cob Mills, Studebaker Wagons, &c.**

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Received Medal AND HIGHEST AWARD

OF MERIT AT CENTENNIAL.

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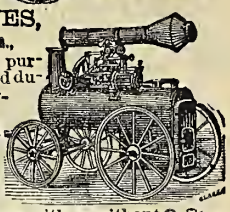
## STEAM ENGINES,

**A. B. FARQUHAR, York, Pa.,**

Cheapest and best for all purposes—simple, strong, and durable. Also Horse Powers and Gin Gear.



SAW, GRIST AND COB MILLS, GINS, PRESSES AND MACHINERY generally. Inquiries promptly answered.

Fig. 1.

Vertical Engines, with or without wheels, very convenient, economical and complete in every detail, best and cheapest Vertical in the world. Fig. 1 is engine in use. Fig. 2 ready for road.

Boilers 6 inches larger than other makers.

Fig. 2.

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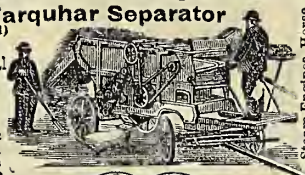
## The Farquhar Separator

(Warranted)

Penna. Agricultural Works, York, Pa.

Lightest draft, most durable, simplest, most economical and perfect in use. Wastes no grain, cleans it ready for market.



Steam Engines, Horse Power and Threshers of all kinds. Also, Ploughs, Cultivators, &c., &c.

AND HIGHEST PRIZE AWARDED SEPARATORS,

THE SILVER MEDAL AT Paris Exposition.

Send for Illustrated Catalogue. *Address A. B. Farquhar, York Pa.*

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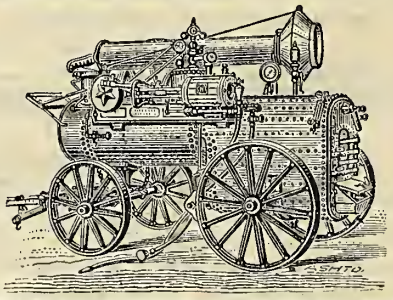
# NICHOLS, SHEPARD & CO.,

**Battle Creek, Mich.**

## ORIGINAL AND ONLY GENUINE "VIBRATOR" THRESHING MACHINERY.

**THE Matchless Grain-Saving, Time-Saving,** and Money-Saving Threshers of this day and generation. Beyond all rivalry for Rapid Work, Perfect Cleaning, and for saving Grain from Wastage.



**STEAM Power Threshers a Specialty. Special** sizes of Separators made expressly for Steam Power.

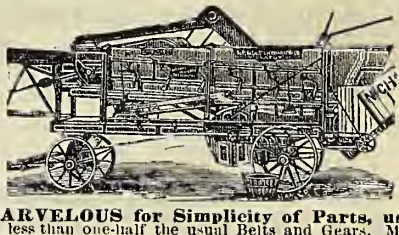
**OUR Unrivaled Steam Thresher Engines,** both Portable and Traction, with Valuable Improvements far beyond any other make or kind.

**THE ENTIRE Threshing Expenses (and often** three to five times that amount) can be made by the Extra Grain SAVED by these Improved Machines.

**GRAIN Raisers will not submit to the enor-** mous wastage of Grain and the inferior work done by all other machines, when once posted on the difference.

**NOT Only Vastly Superior for Wheat, Oats,** Barley, Rye, and like Grains, but the ONLY Successful Thresher in Flax, Timothy, Millet, Clover, and like Seeds. Requires no "attachments" or "rebuilding" to change from Grain to Seeds.

**IN Thorough Workmanship, Elegant Finish,** Perfection of Parts, Completeness of Equipment, etc., our "VIBRATOR" Thresher Outfits are Incomparable.



**MARVELOUS for Simplicity of Parts, using** less than one-half the usual Belts and Gears. Makes Clean Work, with no Litterings or Scatterings.

**FOUR Sizes of Separators Made, Ranging** from Six to Twelve-Horse size, and two styles of Mounted Horse Powers to match.

**FOR Particulars, Call on our Dealers or** write to us for Illustrated Circular, which we mail free.

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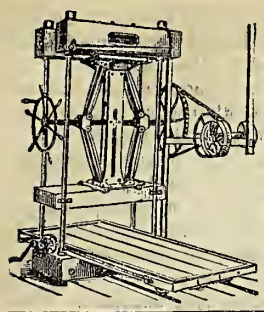
## Hutchinson's Patent Adjustable Harrow.

Farm rights, with instructions, $2.00. Complete harrows shipped to any address, $12.00. Stamp for circular.

S. HUTCHINSON, Griggsville, Pike Co., Ill.



POWER
**CIDER PRESS,** with Double Platform **Grater** (reduced to $40). Elevator, and full line of Cider Mill Supplies. Send for Catalogue. Address
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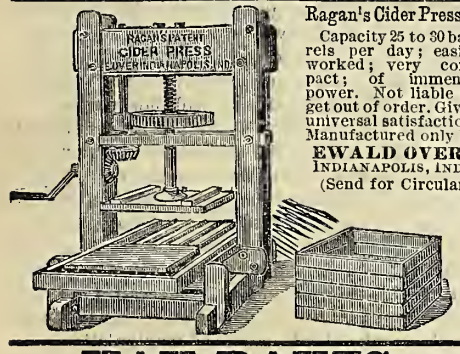
Syracuse, N. Y.




**Ragan's Cider Presses**
Capacity 25 to 30 barrels per day; easily worked; very compact; of immense power. Not liable to get out of order. Gives universal satisfaction. Manufactured only by
**EWALD OVER,**
INDIANAPOLIS, IND.
(Send for Circular.)

**HAY RAKES.**
**REVOLVING AND SULKY RAKES**
at great bargains. Send for Circulars.
**A. B. COHU,**
197 Water St., N. Y.

**DOUBLE HARPOON**
**HORSE HAY-FORK.**
**BEST IN THE WORLD.**
Descriptive Catalogue sent free.
**Pennock Manufacturing Company,**
KENNETT SQUARE, Chester Co., Pa.

**Galvanized Cable Fence Strand**
The only Wire Fence that stands the test of time. No Barbs.
**PHILIP S. JUSTICE,**
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**Agricultural**
**Insurance Company, of Watertown, N. Y.**
Capital $200,000.00. Net Surplus, $216,645.62. Total assets for the security of Policy-holders, January 1st, 1879, $1,150,063.99. Insures only Farm Property and Residences against fire and lightning. Takes no business risks.

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*FRUIT AND VEGETABLE*
**DRYER & BAKE OVEN**
**Over 11,000 in use.**
**The BEST in the Market,**
Made entirely of *Galvanized Iron*
**AGENTS WANTED.**
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ZIMMERMAN FRUIT DRYER CO.,
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**FARMS $400 to $1000. JOIN OUR COLONY!**
*Maps and pamphlets free.* J. F. MANCHA, Claremont, Va.

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**FARMS.**—100 Delaware Fruit and Grain Farms cheap. Catalogues free. A. P. GRIFFITH, Smyrna, Del.

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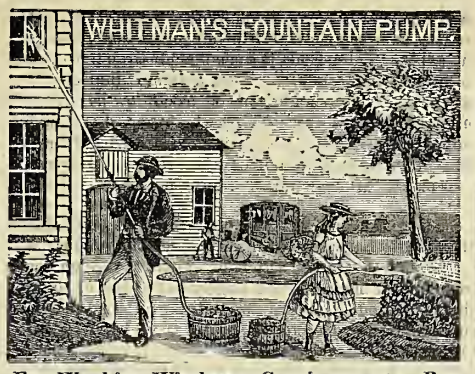


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We manufacture the old reliable **Stover**—the well tried, strong, durable, self-regulating, solid wheel **Wind Mill,** which took *the* Centennial Diploma, as well as a Medal. Others may talk, but we refer to the **Official** Centennial Report. Also the **Stover** $20.00 Oscillating Feed Grinder, (with O. E. Winger's late improvements), which is operated by 10 and 12 ft. Pumping Wind Mills—a novel and perfect Mill for grinding all kinds of grain for stock and horse use. Agents wanted everywhere. Branch factory at Greencastle, Pa.
Send for catalogue to **STOVER WIND ENGINE CO.,**
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**10 FEET BANNER WIND MILL.** The best made. Latest Improvements. Warranted 5 years. N. P. MIX, Avenue, O. **$75**

**Myers' Improved Wind Mill.**
Perfectly self-regulating, and the only Wind-Mill that stands on the derrick in perfect balance, in gear and out of gear. It is a solid Wheel-Mill, and is warranted to be well made and to stand the most violent storms. Every farmer, stock-raiser, and dairyman should have one for pumping water for stock, grinding feed, etc.
Send for Circular and Price-List.
**Silver & Deming, Mfg. Co.,**
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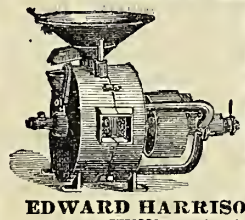
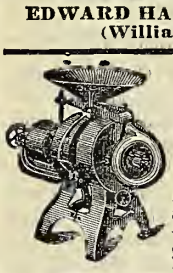
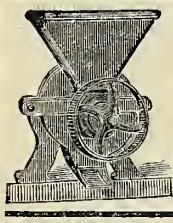
**HARRISON'S MILLS,**
**NEWLY IMPROVED.**



New Standard Flouring Mill. New Standard Corn Mill. Capacity of 12-inch Mill, 2 to 12 bus. per hour; capacity of Light 20-inch Mill, 6 to 40 bus. per hour.
Wholesome Bread, Fine Flour, High Speed, Quick Work, and Economical Milling Fully Established. For illustrated catalogue, describing the Harrison System, Address Estate of
**EDWARD HARRISON, New Haven, Conn.**
**(William A. Foskett, Administrator.)**



**BURR MILLS.**
**EVERY FARMER HIS OWN MILLER.**
The best *Vertical* and *Horizontal* French Burr Grinding Mills, Portable Flouring Mills, and Mill Machinery. They possess numerous original and valuable improvements. The best Mill ever made. Send for Illustrated Catalogue and be convinced.
**C. C. PHILLIPS, 4048** Girard Av., Philadelphia, Pa.



**FARM GRIST MILLS and Corn Shellers.**
Every farmer should have them.
**Over 20,000 in Use.**
Every machine is guaranteed to give satisfaction, or no pay. Price of mills, $12; shellers, $5. Send for descriptive circulars and terms to agents.
LIVINGSTON & CO., Iron Founders, Pittsburg, Pa.

☞ **FRIENDS!** If you are in any way interested in
**BEES OR HONEY,**
We will with pleasure send you a sample copy of our **MONTHLY GLEANINGS IN BEE CULTURE,** with a descriptive price-list of the latest improvements in **Hives, Honey Extractors, Artificial Comb, Section Honey Boxes,** all books and journals, and everything pertaining to Bee Culture. *Nothing Patented.* Simply send your address on a postal card, *written plainly,* to
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*containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.*

## Continued from Page 215.

**In justice to the majority of our subscribers, who have been readers for many years, articles and illustrations are seldom repeated, as those who desire information on a particular subject can cheaply obtain one or more of the back numbers containing what is wanted.**

**Back numbers of the "American Agriculturist," containing articles referred to in the "Basket" or elsewhere, can always be supplied and sent post-paid for 15 cts. each, or $1.50 per volume.**

**Wheat or Rye for Fowls.**—"J. L. L.," Sandwich, Mass. Wheat is better than rye for poultry; no other grain is so productive of eggs as wheat; buckwheat is the next best food, barley next, corn next, oats next, and rye the poorest—at least in the writer's experience.

**Retention of a Calf.**—"G. B.," East Aurora, N. Y. Instances of the retention of a fœtal calf in the uterus, are not unknown, although somewhat rare. Cases have occurred in which the cow has recovered and has lived for years, but always in indifferent health. When such trouble is suspected, the calf may be successfully removed by a competent veterinary surgeon.

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**Milk for Cheese.**—"P. T. D.," Salina, Ont. The average quantity of pure milk needed for a pound of cheese is ten pounds. It varies during the season, and also in proportion to the amount of cream in the milk. A smaller quantity of rich milk than of poor is required to make a pound of cheese.

**Firing for Ring-Bone.**—"A. L. S.," Warners, N. Y. It is very dangerous to treat a ring-bone recklessly. Firing and blistering should not be done without good reason, and by a competent person. The country is overrun with quacks who call themselves veterinary surgeons, and who are always ready to recommend such severe measures, but owners of horses should hesitate before putting valuable animals in their hands.

**A Well Furnished Farm.**—"L. S. T." The proportion of farms that are well furnished is small. For the most profit, a farm should be so well stocked as to supply a large part of the manure to keep it in a fully productive condition, and there is also needed a sufficient cash capital to buy supplementary food to furnish rich manure, or otherwise the needed artificial fertilizers. Farmers are, however, gradually improving their circumstances in this respect.

**No Butter.**—Mrs. "B.," Roanoke Co., Va. After a cow has been milked for 18 months, the milk has changed considerably, and there is difficulty in getting butter from it. From the time that a cow is fresh, a change in the milk is gradually taking place, and churning becomes more difficult. In some cows this is worse than in others. Churning is made easier by warming the cream up to 65 or 70 degrees.

**Metallic Shingles.**—Tin, or other metallic roofings have long been used; the success of these, depends upon having the whole roof covered by one continuous sheet; a single break or defect from rust impairs the whole. In the "Metallic Shingles," the roofing is of iron in sections, each about as large as a wooden shingle or roofing slate; each piece is ingeniously grooved and ridged in such a manner, that while it adds greatly to the strength, it allows of the complete matching and fitting, and facilitates the carrying off of water. The iron is covered with a paint claimed to completely prevent rust. The makers claim this roof to be superior to slate, tin, or wood, in many important particulars; the specimen subjected to our inspection, impressed us very favorably.

**Gas-Lime.**—Several subscribers ask about gas-lime. This is a refuse from gas-works, and, as we have before stated in these columns, it at first contains some injurious ingredients, but after lying exposed to the action of air and weather for some months, these are neutralized, and the result is a substance resembling "air-slacked" lime in composition and effect. One enquirer asks if "gas-lime can take the place of plaster in a compost, to *increase decomposition and arrest escaping ammonia.*" But plaster only does one of these things, the latter; the property which enables it to "fix" the ammonia, is the very thing that would *prevent* decomposition. "Gas-lime," when fit to use, is mostly a carbonate of lime (plaster is a sulphate): therefore, like "air-slacked lime," its effect in a compost would be to promote decomposition. It has value for use on heavy soils, just as ordinary slacked lime is employed.

**Cut-Worms and Cabbage-Worms.**—"R.," Ridgefield, Conn., writes that he mixes Paris green and plaster as for potatoes, and puts half a teaspoonful close about the stalk of each cabbage plant. As the cut-worm takes off cabbages even with the ground, this may answer. He further says that he dusts cabbages, cucumbers, and other vines with this, and has perfect success in killing the insects. We see no objections to applying it to the vines, but we should decidedly *not* use it upon cabbages. There is too much risk in this.

**"Please Make a Mark on My Paper."**—It not rarely happens that a subscriber with the intention of saving us trouble, suggests that we may thus answer his question—"if yes, please make a mark on my paper." Others suggest that we write on a slip, and "put it in my paper," or to write upon the margin. Every method of conveying information other than something that relates to the paper itself, is illegal. We now have the right to designate that a paper is from a particular person, but beyond matters like this; all conveyance of intelligence not printed in the paper is against the law. Were this not so, the proposed plans are altogether impracticable. The wrapping and mailing of the paper is done several stories away from the editorial rooms, and it would be easier, and therefore cheaper, for us to write several letters than to attempt to find out when the papers for a particular Post-office were being mailed, and mark the paper for some one at a given office. All will see that requests like the above can not be complied with.

**Making Babbit Metal Boxes.**—"F. D.," Monroe Co., N. Y. In lining iron boxes with Babbit metal, the shaft and shell of the box are fitted together in the position they should occupy when the box is lined; pieces of thin wood are cut to fit the ends of the box and the shaft, to prevent the liquid metal from running out through the spaces there, as it is poured in. One-half of the box is filled at a time with metal melted in an ordinary melting ladle, the edges of the metal being trimmed afterwards with a chisel or fine saw, if necessary. There are holes drilled in the inside of the box, into which metal runs, and holds the lining into its place. The oiling holes are filled with plugs of wood, which fit close to the shaft, before the metal is poured in, or the holes may be bored out.

**Sweeny in Horses.**—"J. H. D.," Greenbrier, Ala. Sweeny is not a disease, but only the effect of disease which prevents the use, or causes atrophy or shrinking, of the shoulder muscles. The source of trouble must be sought elsewhere. This is usually to be found below the shoulder, and in the joints or in the foot. Examine carefully by pressure all over the limb, and by striking the foot with a light hammer; when the spot is touched, the horse will show it by flinching. Then the proper treatment, which cannot be indicated without knowing the precise circumstances, is to be applied. A good veterinary work, such as "Dadd's Horse Doctor," should be kept and studied by every owner of horses.

**Your Name!**—It seems necessary to say to new subscribers—our old friends understand it—that a letter without name, or signed "A Subscriber," "A Reader," or with initials only, has not the slightest claim to our attention. If an inquirer does not think the matter of sufficient importance to sign his letter, we do not think it of sufficient importance to answer it, and it goes into the waste basket. *Please observe*—More than half of the letters we receive, are of interest to the writer *only*, and we cannot take up space in the paper to print answers to one. We can not reply "in our next" or in any other issue, to questions, unless the answer will benefit many besides the one who asks. Questions of personal interest only, are answered by Postal card or letter—provided the address is given. *Please observe* that we do not give names, if a desire to the contrary is indicated. Sign the letter what you please, but *also* give the real address. *Please observe*, that it very often happens that while an answer to a letter would be generally useful, it often reaches us too late to appear in time to help the writer or any one else. *Always* in asking questions needing an early reply, include a post-stamp or a postal card, so that we may answer by mail if it is not practicable to do so in the paper. Three cents is a small affair to an individual; to us with thousands of letters, a stamp upon each is a heavy tax. We should not be asked to pay for the privilege of answering. Those who have written anonymous letters should repeat their questions with their own signatures, as they cannot expect a reply. *Always* sign your name. *Always* include return postage.

**Shipment of Mules to Africa.**—It would be difficult to say what peculiarly American product will not in time become an article of export to foreign countries. After having added largely to the list of exportable merchandise, we are now shipping abroad mules in large numbers. Heretofore, mules have been exported to Cuba and other places near by; now they are going to Africa to supply the wants of the British government in the war with the Zulus. There have been sent 500 head in one shipment as an experiment. Horses are not sufficiently hardy for the climate and rough work in that locality, and nearly all those sent from England have died on the passage. As we have the best mules in the world, and these animals are useful everywhere, we may hereafter find them greatly in demand abroad, and so add another important item to our list of exports. Some one has suggested that if these mules were turned right end towards the enemy, they would be more effective than artillery.

# REPORTS
FROM
# High Scientific Authorities
UPON THE NEW
# American Agriculturist
# COMPOUND MICROSCOPE.

The first Four of these new MICROSCOPES completed early in 1879, were sent by express to the distinguished authorities on such matters named below, with the request that they give them a thorough examination and testing, at their earliest convenience, and write us their opinions of them. They did so, making suggestions which were immediately adopted, and several other improvements have been since added, and the magnifying power has been much increased, so that the microscopes are now much more valuable and perfect, than when their opinions were given. We give here portions of the letters received in response.

### From Prof. ASA GRAY of Harvard University,

The author of many works on Botany, etc., and the first authority in the country on this subject.

"HERBARIUM OF HARVARD UNIVERSITY,
Botanic Garden, Cambridge, Mass.

"I have been examining the new Compound Microscope which you sent me for trial; and my conclusion is, that it is the best Microscope of the kind I know of for *anything like that money.* We botanists, who do our ordinary work with simple microscopes, the glasses good doublets, or Tolles' Parabolics, and for high powers use instruments which cost anywhere from $600 to $80, are inclined to look down on smaller and cheaper things. *But really for the School Teacher or Student, I don't see* why this new instrument does not *very well* serve all ordinary purposes. When I was a young Teacher, and $50 or $80 were as much beyond my means as $500, this instrument would have been a TREASURE; and so it may be to VERY MANY who are now in a similar case. *The mechanism is excellent, and the magnifying parts for their powers are quite satisfactory. The wonder to me is, how it can be got up for any such price.....* [Prof. Gray's well known carefulness and conservatism in expressing an opinion, make the above very high praise of the instrument.—ED.]

### Prof. G. BROWN GOODE,

CURATOR of the National Museum at the SMITHSONIAN INSTITUTION at Washington, and long one of the foremost, active investigating members of the United States Fish Commission, writes, from Washington, D. C.

"I have examined the new COMPOUND MICROSCOPE, *and believe it to be a much better instrument than has before been offered in the United States so low as* **$30.** I find no difficulty in making out by its aid the structure of the fruit clusters of ferns, the bird's-head processes of hydroids, and the circulation of the blood in a young fish" (all severe tests). "It defines as sharply and gives almost as flat a field as my own large Compound Microscope with one of Wales' best ⅔-inch objectives, and when the draw-tube is out, its magnifying power is much increased. ....I have been studying ichthyology for eight years, with an excellent English Microscope always at my elbow, and have not, during that time, had occasion to make more than fifteen or twenty observations for which the *American Agriculturist* Microscope would not have been adequate. The greater size of the stage and mirror are to me the chief advantages in my large instrument, and these render it so difficult to pack, that I rarely carry it with me to the shore in summer.....I am told that many beautiful illustrations of hydroids in Agassiz's "*Contributions to Natural History of the United States,*" were drawn with the aid of less powerful glasses than those in the *American Agriculturist* Microscope. No one but the histologist, the lithologist, or the student of the *minutest* forms of life, such as the diatoms and infusoria, needs or can often use lenses more powerful than those supplied with this instrument; and to be successful in these lines of research, one needs not only long training, but the most delicate power of manipulation..... The application of automatic machinery to the manufacture of Microscopes on a large scale, largely promoted by the efforts of Mr. ORANGE JUDD, is a new enterprise, and the *American Agriculturist*, in giving to the public instruments good enough for all ordinary uses, *at a price which puts them within the reach of every one,* will be making still another important contribution to the work of popular education....."

### Prof. WM. NORTH RICE.

Professor of Natural History, Geology, etc., in the Wesleyan University who instructs classes in Microscopy, and also uses large costly instruments, writes:

"The new *American Agriculturist* Compound Microscope you sent me, is an elegant instrument, and with the accessories is certainly very cheap at the price at which I understand you propose to supply it. The model is graceful, and the nickel-plated body, and polished vulcanite stage, give it a very pleasing appearance. The vulcanite stage allows the object to slide very smoothly upon it, and is not liable (like a metallic one) to rust or tarnish from contact of fluids. The rack-movement is as smooth and steady as in many instruments of much higher price. By using the objectives separately and in combination, and moving the draw-tube in and out, a range of power is obtained from **27** to a little over **100 diameters.** [Since increased to 150 diameters.] This series of powers begins just about where the series afforded by your Simple Microscope ends; so that, taking the two instruments together, we get a range of powers from **7** to **100 diameters.**.....The mirror is so hung as to allow an oblique illumination, which with many objects is exceedingly desirable. The CAMERA LUCIDA is of a form which is the *simplest, and yet one of the most efficient.* By enabling the observer to draw the objects seen, it *adds much to the educational value of the microscope.* In general, the instrument is adequate to furnish not only *amusement,* but *real instruction.* I should be glad if the educating influence of such a Microscope might be generally diffused in the Homes and the Common Schools of our land..... [We aim to promote such general diffusion.—Ed.]

### Prof. JOHN PHIN.

Editor of the *Journal of Microscopy*, author of several works on Microscopes, writes:

"I have examined carefully the new *American Agriculturist* Compound Microscope, which you placed in my hands, and find it a *wonderfully efficient instrument* for *the price.* The lenses for these, not professedly achromatic, are *extraordinarily good.* The magnifying powers, which range from 25 to 100 diameters, [since increased to 150 diameters and upwards,] according as they are used single or double, and with with the draw-tube in or out, show a much wider range of objects than is ordinarily supposed.

"It is safe to say that this new Microscope will

give a fair idea of the characteristics of two-thirds of the objects usually found in microscopic cabinets.

"For example, I have just seen with it the *characteristic differences* of the blood of man, the chicken, the frog, etc. It will show well the circulation of the blood in the foot of the frog. It shows clearly and well the differences between cotton, linen, silk, and wool, and it shows the scales and markings on the latter (wool) very boldly. It shows not only the trichina cysts in the muscle of the pig, but also the peculiar striæ or markings on the muscular fibre itself. Sections of woods, and the characteristic vessels and markings, such as dotted ducts, spiral fibres, etc., so interesting to students of botany, will all be clearly made out by this microscope.

"Perhaps it may not be out of place to say that a power of 100 diameters is by many vendors rated at 10,000 times. While this is unfair, and even deceptive in the majority of cases to which the microscope is applied, there are some subjects concerning which it is *more than* true. Thus a little speck of gold, weighing the *one-hundredth* part of a grain, if seen under the highest power of this new microscope, would look as large as a mass of a similar shape weighing one pound and a quarter (8,750 grains) seen with the naked eye!! This is startling, but true.

"Allow me to congratulate you on your success in giving our young people a microscope which, while extraordinarily low-priced, is really of *decided practical value.*"

**Rape before Wheat.**—"J. M.," Blairsville, Pa. Spring rape or mustard may be sown as a summer pasture for sheep, and as a preparation for wheat, with advantage. It may be sown at once, a peck of seed being used per acre; and when high enough, may be eaten down by the sheep. It should be plowed under when any that is left is in blossom, but should not be permitted to mature seed.

**Protrusion of the Rectum in Swine.**—"J. H. D.," Adams Co., Ohio. This trouble is frequent in swine. It is caused by costiveness and consequent straining, or by weakness of the nerves of the spine, and often results in partial paralysis. The remedy is to give laxative medicine or food, as linseed-oil or linseed-meal, and to return the gut and inject an ounce of a mixture of 8 parts of water and 1 part of laudanum. The animal should be lightly fed, kept in a dark quiet pen, that he may sleep and rest as much as possible.

**Barb Fence.**—"H. H. S.," Rockingham Co., Va. To make a wire fence hog proof, it must have 5 or 6 wires, strained very tightly, and have posts not more than 16 or at most 24 feet apart. A good post and rail, or board fence, is preferable to a wire fence excepting where lumber is very costly, or where the snow drifts badly.

**Vine Named.**—"G. W. K.," White Haven, Pa. The vine which came up in your hanging basket, is not poisonous, but often cultivated under the name of "Balloon Vine," so called on account of its inflated, balloon-shaped pods. It is a native of the far South-West; its botanical name is *Cardiospermum Halicacabum.*

**Horses — Knuckling.**—"F. A. P.," Dudley, Mass. When the fetlock or pastern joint bends over with a snapping noise, it is known as "Knuckling." It results from a sprain or weakness of the hock, or sinews of the lower part of the leg. Rest for a lengthened period (3 days rest is of no account), and the application of cold water until the heat and tenderness are removed, and then rubbing with a stimulating application, will frequently remove the trouble. It is sometimes the effect of constitutional weakness, and is then incurable. In the latter case the support of a laced bandage will be useful.

**The Trade in Tin—and Tin Plate.**—Tin is a remarkable metal, almost equalling silver in beauty; it is the lightest of all the common metals save zinc, being about five-eighths as heavy as lead (the specific gravity of lead being 11.39 and of tin 7.29). Though it is sufficiently abundant and cheap to allow of its common use, it is found in but few localities in abundance, and it is somewhat singular that, with our abundance of other metals, we are dependent upon other countries for this, our deposits not being large enough for profitable working. The mines of Cornwall, Eng., are the largest in the world. The leading sources of the supply of this metal in 1874 were: Great Britain, 10,000 tons; Malacca, 7,000 tons; Anstralia, 5,800 tons; Banca (Malayan Island), 4,000 tons; Billiton and Banca (Malayan Islands), 3,000 tons ...The tin plate, used for so many purposes, consists of thin plates of iron coated with tin by dipping the carefully scoured plates in the melted metal. The value of the plate depends upon the quality of the iron and the thickness of the coating of tin. "Charcoal Tin" and "Coke Tin" are trade names for plates, the iron of which is smelted with these fuels. The poorest grade has but one pound of tin to 100 lbs. of plate, while the better qualities have two or three times as much; the coarser varieties are covered with an alloy of tin and lead. "Cross Tin" is the name for a kind in which the iron plate is heavier than in the common tin. A box of tin plate containing 225 sheets 10×14 inches, weighs 1 cwt. (112 lbs.); a box of "cross tin" of the same number and size of sheets, weighs 1¼ cwt., or 140 lbs., of which 4 to 6 lbs. are pure tin in the coating, and the rest iron.

**Saw-Dust.**—"E. B. S.," St. Paris, O. Saw-dust that has "lain 8 or 9 years in a heap," and is not yet rotted sufficiently to make manure, shows pretty plainly the task before you. If it will decompose at all, it will do so by laying in bulk exposed to air and rain. Saw-dust will make wet land wetter and dry land moist. Probably the best use for it is as a mulch around trees.

**Land Plaster.**—"C. N.," Wash. Ter., wishes us to tell him about "Land Plaster; what it is made of, and how it is made."—If we were to answer, "it is not made at all," the reply, while accurate, would hardly be courteous. Plaster is an unfortunate name, as it has several other meanings, and if all would agree to call it *gypsum*, the old Greek and Latin name for the substance, it would be much more definite. Gypsum, or Land Plaster, then, is a natural product, a mineral, occurring sometimes in crystals, but oftener in mass, in beds several feet in thickness. The finer kinds, partly transparent and variously colored, are known as alabaster; the common kinds, varying from white to lead color, or even black, are much softer than common limestone, and are more translucent. There are large beds, where it is quarried, in Michigan, New York, Nova Scotia, etc. Its composition, in round numbers, is: Lime 32½, sulphuric acid 46½, water 21 parts in 100—really a sulphate of lime combined with water. This water may be driven off by a heat of 272°, and the gypsum then becomes Plaster of Paris. When Plaster of Paris is mixed with water, it soon recombines with the water that was driven off by the heat, and "sets," or becomes solid. Gypsum or land plaster then is a sulphate of lime containing about 21 per cent of water. Plaster of Paris is sulphate of lime, without water. The ground, unburned stone only, is used as a fertilizer.

**Fine Maple Sugar.**—W. B. Wheat, Croton, Del. Co., N. Y., sends a sample of maple sugar, to show the quality he has made for several years past. It is very light colored, has an excellent grain, and possesses the peculiar maple-sugar flavor, in a high degree. It is often the case, that very light colored sugar is deprived of this flavor in the process, and is then no different from common sugar. Mr. W. says, that his only secret in making sugar of this kind,—and we do not remember to have seen it excelled—is a thorough knowledge of the business, which leads to having everything used in and about the operations as clean and as pure as possible.

**In** this country all persons are compelled of necessity to wear shoes, at least most of the year, and although it is generally understood that some individuals are much harder upon shoes than others, still it has always been a wonder to us why children (even making allowance for the greater number of steps they take) should wear out two and even three pairs to grown people's one. We have, however, of late, discovered that this is due largely to their not being properly made. What we mean by this is that they have not been protected from wear where the greatest amount of wear comes—*that is, at the toe*—and consequently wear through at this point, while the balance of the shoe was but little worn and often perfectly good. Parents who are not aware of this will be convinced at once if they will examine the children's old shoes. This need no longer be the case, as shoes with the metal tip, which is adapted to all the heavy grades, and those with the (A. S. T. Co.) black tip, which is adapted to all fine shoes, remain perfect at the toe until the shoe is entirely worn out. We are satisfied that parents can reduce their shoe bills one-half if they will, when purchasing, ask for shoes made in this way. The black tip really adds to the beauty of the finest shoe.

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**Speaking of Mr. Thomas Higgin,** the "*American Cultivator*" of May 3d says:—"Always well known for enterprise and business sagacity, he has, during the last few years, become noted as the inventor of an improved process in salt manufacture, which bids fair to revolutionize that business. So great has been the demand for this new make of salt that his firm have been obliged, during the last year, to make additions to their already extensive works; and Mr. Higgin is at present on a visit to this country for the purpose of bringing its quality to the attention of the American public, and, if the quality of American brine will permit, to induce salt manufacturers here to use his process, paying a royalty therefor. Competent judges say it is probable that this process will work as great a revolution in the manufacture of salt as the discovery of the Bessemer process has in that of steel, or new process in milling in that of flour." Confirmatory of this comes the announcement in the "American Grocer" of May 8th, that during the first three months of 1879 the importations show an increase of over 50 per cent of Higgin's salt, and a decrease of 17 per cent in Ashton's, a brand once generally considered the best. This improved salt (Higgin's *Eureka* brand) is for sale by most dealers in salt, and by the importers, H. K. & F. B. Thurber & Co., New York. Send for descriptive circular.

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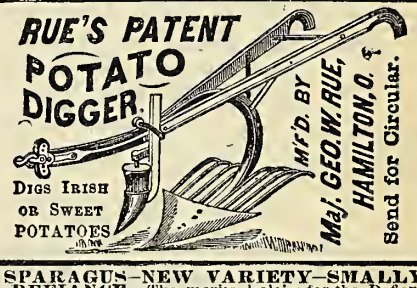


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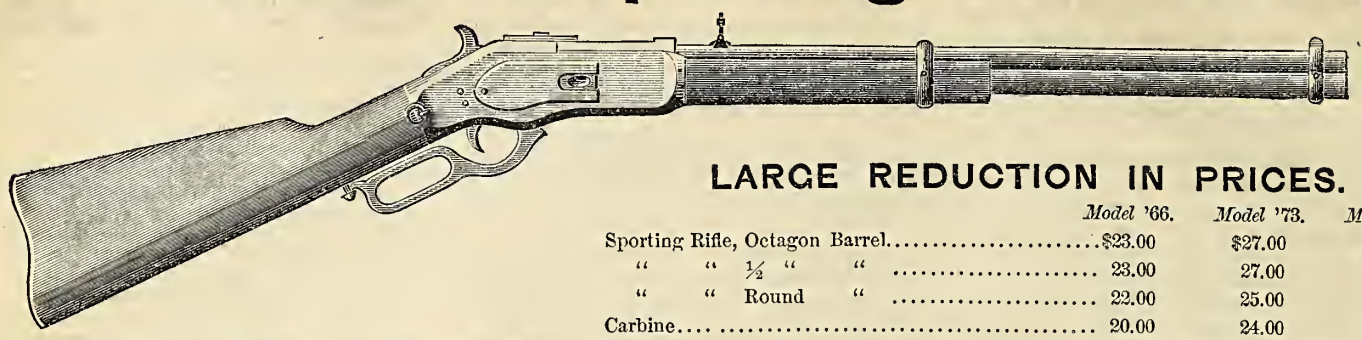

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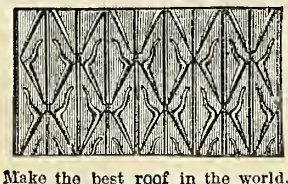

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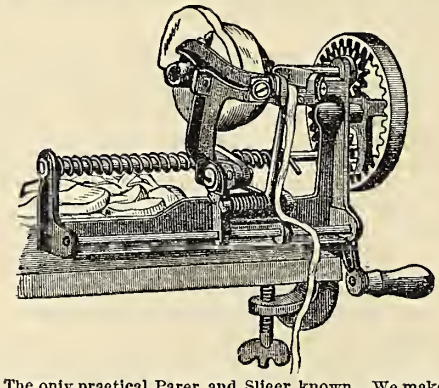

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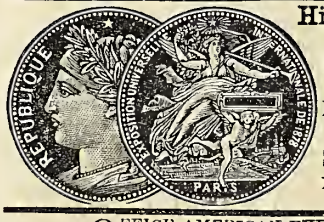


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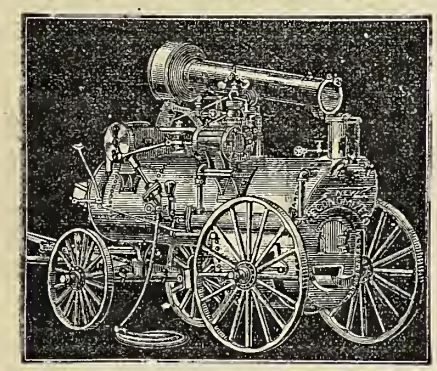

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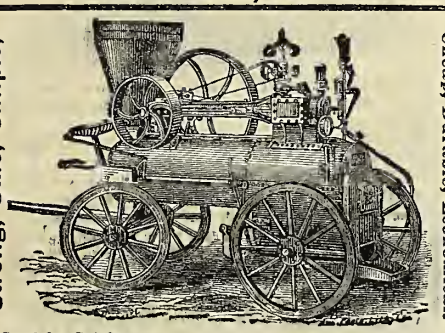

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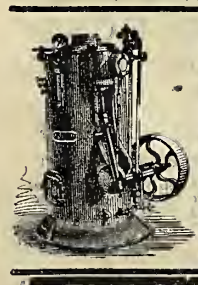

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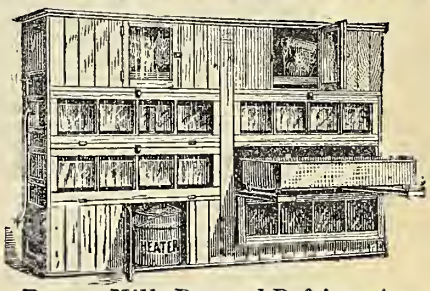


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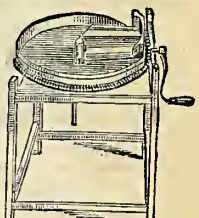

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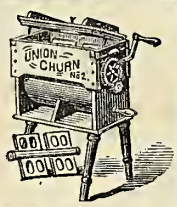


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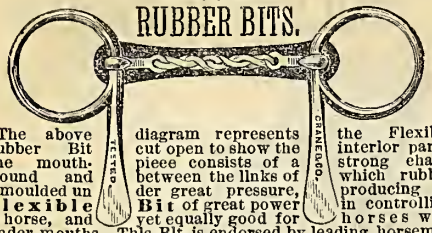


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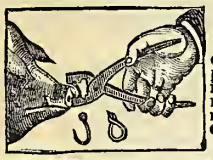

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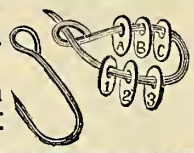


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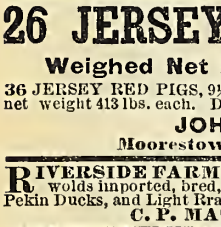

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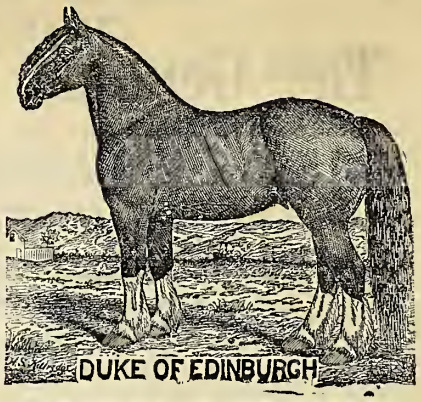


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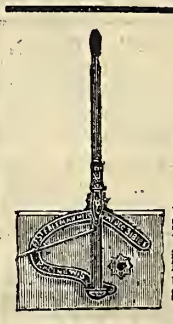

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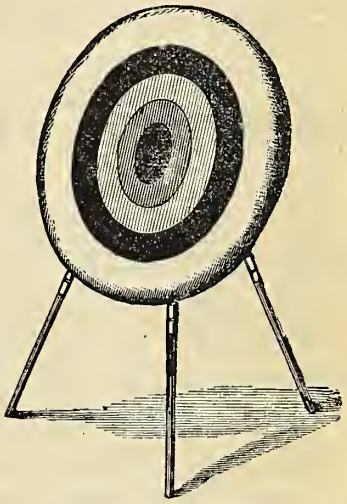

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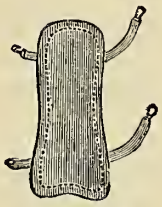

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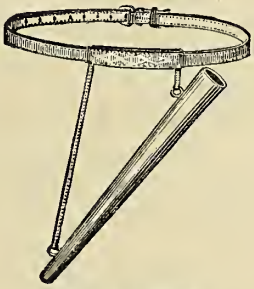

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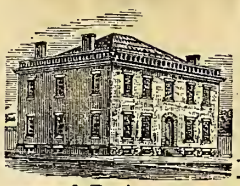

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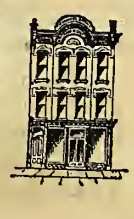

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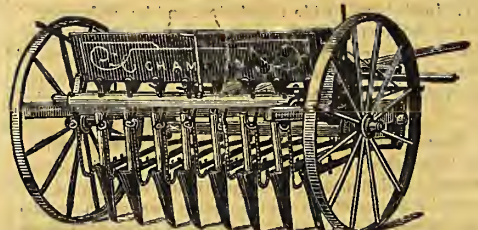

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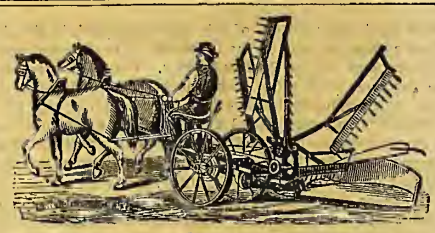

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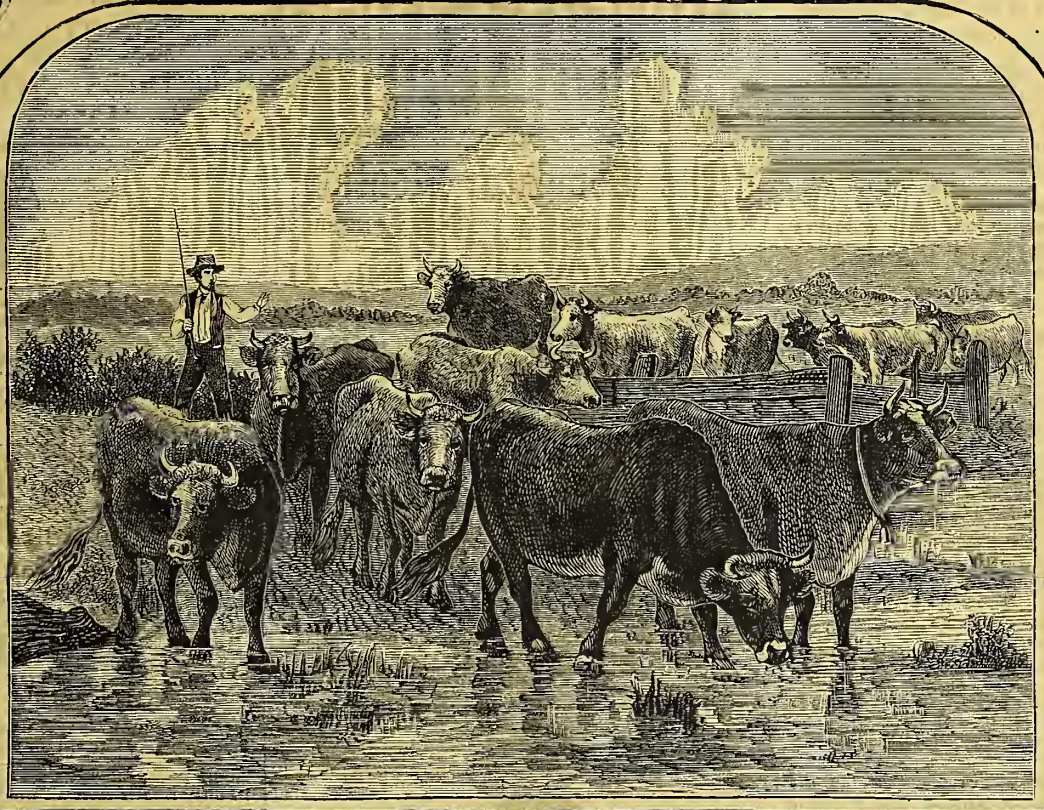

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VOLUME XXXVIII.—No. 7. NEW YORK, JULY, 1879. NEW SERIES—No. 390.

HUCKLEBERRYING.—AFTER A WATER-COLOR PAINTING BY WINSLOW HOMER, ESQ.

In looking at the paintings and engravings that decorate the walls of the study, or "den," of a gentleman well known as a friend to agriculture, we were particularly struck by a water-color painting representing huckleberrying in the mountains. There was such a breeziness, so to speak, about the picture, and the broad color effects were so true to nature, that we asked permission to copy it for the *American Agriculturist*, well knowing that the effectiveness of the picture was largely due to color, and that much of this would be lost in rendering it in the black and white of an engraving. The request was readily granted, and the engraving above given is the result. To those who keep the run of art matters, we need say nothing of Mr. Winslow Homer. Others may like to know that he is an artist who, instead of seeking his subjects among the ruins and places of the old world, or in the wilderness of the new, goes to some farming district, and there, in the rural and farm scenes, finds subjects for his pictures which are always sought for by lovers of art, as they are truly American in subjects and treatment. A huckleberry is a very small thing in itself, but when aggregated into pints, quarts, and bushels, it is the foundation of the prosperity of many a family, and furnishes them most of the ready money that they receive in the course of the year. The New York market is supplied with huckleberries from two principal localities—the Pine Barrens of New Jersey, and the mountains of New York, especially the Shawangunk range in Ulster and the adjoining counties, though other ranges near the Hudson river furnish a considerable share. In August, 1876, we gave an account by one of our most intelligent produce merchants, Mr. C. W. Idell, of the extent of the huckleberry trade in New Jersey. That of the mountains of New York is not so well organized, and statistics concerning it are not so readily obtained. Formerly all the berries gathered in this part of New York State had to reach the river and be brought down by boats, but the building of new lines of railroad, bringing the "iron horse" into the very heart of the mountain region, has changed this, and now immense quantities of huckleberries go to market by rail. Ellenville, in Ulster Co., is a great shipping point. Wurtsborough, in Sullivan Co., is another. One dealer informs us that in one day a single express company, the American, brought to the city no less than 1,300 boxes (½ bushel each) of huckleberries from this mountain district. In some cases the pickers themselves bring their berries to a convenient point upon the railroad. In others there are persons who go to certain points in the mountains, buy up the berries, and ship them themselves. By whatever method they may be brought to rail or boat, the destination of the berries gathered in these mountains is the New York market. The fruit is put up in flat boxes, holding half a bushel—or we should perhaps say, intended to hold that quantity. While the New Jersey berries come in open boxes, and the quantity can be seen, those from the mountains of New York are shipped in covered boxes, and the temptation to short measure is not always resisted. Those sent from the mountains are, strictly speaking, Blue-berries.

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## Calendar for July, 1879.

| Day of Month. | Day of Week. | *Boston, N. England, N. York State, Michigan, Wisconsin, Iowa, and Oregon.* Sun rises. | Sun sets. | Moon sets. | *N. Y. City, Ct., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois.* Sun rises. | Sun sets. | Moon sets. | *Washington, Maryland, Virginia, Kentucky, Missouri, and California.* Sun rises. | Sun sets. | Moon sets. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | H. M | H. M | H. M. | H. M | H. M | H. M. | H. M | H. M | H. M. |
| 1 | T | 4 27 | 7 41 | 1 44 | 4 32 | 7 35 | 1 51 | 4 38 | 7 29 | 1 58 |
| 2 | W | 4 27 | 7 41 | 2 42 | 4 33 | 7 35 | 2 49 | 4 39 | 7 29 | 2 57 |
| 3 | T | 4 28 | 7 40 | rises | 4 33 | 7 35 | rises | 4 39 | 7 29 | rises |
| 4 | F | 4 28 | 7 40 | 8 29 | 4 34 | 7 34 | 8 24 | 4 40 | 7 29 | 8 19 |
| 5 | S | 4 29 | 7 40 | 9 1 | 4 35 | 7 34 | 8 58 | 4 40 | 7 28 | 8 55 |
| 6 | S | 4 30 | 7 40 | 9 28 | 4 35 | 7 34 | 9 26 | 4 41 | 7 28 | 9 24 |
| 7 | M | 4 30 | 7 39 | 9 51 | 4 36 | 7 34 | 9 50 | 4 41 | 7 28 | 9 50 |
| 8 | T | 4 31 | 7 39 | 10 13 | 4 36 | 7 33 | 10 13 | 4 42 | 7 28 | 10 14 |
| 9 | W | 4 32 | 7 38 | 10 37 | 4 37 | 7 33 | 10 35 | 4 43 | 7 27 | 10 37 |
| 10 | T | 4 32 | 7 38 | 10 55 | 4 38 | 7 33 | 10 58 | 4 44 | 7 27 | 11 0 |
| 11 | F | 4 33 | 7 37 | 11 18 | 4 38 | 7 32 | 11 22 | 4 45 | 7 26 | 11 27 |
| 12 | S | 4 34 | 7 37 | 11 45 | 4 39 | 7 32 | 11 50 | 4 45 | 7 26 | 11 56 |
| 13 | S | 4 35 | 7 36 | morn | 4 40 | 7 31 | morn | 4 46 | 7 25 | morn |
| 14 | M | 4 35 | 7 36 | 0 17 | 4 41 | 7 31 | 0 23 | 4 47 | 7 25 | 0 29 |
| 15 | T | 4 36 | 7 35 | 0 56 | 4 41 | 7 30 | 1 3 | 4 48 | 7 24 | 1 10 |
| 16 | W | 4 37 | 7 35 | 1 43 | 4 42 | 7 29 | 1 55 | 4 48 | 7 24 | 1 57 |
| 17 | T | 4 38 | 7 34 | 2 38 | 4 43 | 7 29 | 2 52 | 4 49 | 7 23 | 2 52 |
| 18 | F | 4 39 | 7 33 | sets | 4 44 | 7 28 | sets | 4 50 | 7 22 | sets |
| 19 | S | 4 40 | 7 32 | 7 47 | 4 45 | 7 27 | 7 43 | 4 51 | 7 22 | 7 39 |
| 20 | S | 4 41 | 7 32 | 8 16 | 4 46 | 7 27 | 8 13 | 4 51 | 7 21 | 8 10 |
| 21 | M | 4 42 | 7 31 | 8 41 | 4 46 | 7 26 | 8 40 | 4 52 | 7 20 | 8 39 |
| 22 | T | 4 43 | 7 30 | 9 5 | 4 47 | 7 25 | 9 5 | 4 53 | 7 19 | 9 5 |
| 23 | W | 4 43 | 7 29 | 9 29 | 4 48 | 7 24 | 9 31 | 4 54 | 7 19 | 9 32 |
| 24 | T | 4 44 | 7 28 | 9 54 | 4 49 | 7 24 | 9 57 | 4 55 | 7 18 | 10 0 |
| 25 | F | 4 45 | 7 27 | 10 23 | 4 50 | 7 23 | 10 27 | 4 56 | 7 17 | 10 31 |
| 26 | S | 4 46 | 7 26 | 10 58 | 4 51 | 7 22 | 10 3 | 4 56 | 7 16 | 11 9 |
| 27 | S | 4 47 | 7 25 | 11 39 | 4 52 | 7 21 | 11 45 | 4 57 | 7 15 | 11 52 |
| 28 | M | 4 48 | 7 24 | morn | 4 53 | 7 20 | morn | 4 58 | 7 14 | morn |
| 29 | T | 4 49 | 7 23 | 0 31 | 4 54 | 7 19 | 0 38 | 4 59 | 7 13 | 0 45 |
| 30 | W | 4 50 | 7 22 | 1 33 | 4 55 | 7 18 | 1 40 | 5 0 | 7 12 | 1 50 |
| 31 | T | 4 51 | 7 21 | 2 43 | 4 56 | 7 17 | 2 49 | 5 1 | 7 11 | 2 56 |

PHASES OF THE MOON.

| MOON. | BOSTON. | N. YORK. | WASH'N. | CHA'STON | CHICAGO. |
|---|---|---|---|---|---|
| | D. H. M. | H. M. | H. M. | H. M. | H. M. |
| Full M'n | 3 4 54 ev. | 4 42 ev. | 4 30 ev. | 4 18 ev. | 3 48 ev. |
| 3d Quart. | 11 4 10 mo. | 3 58 mo. | 3 46 mo | 3 34 mo. | 3 4 mo. |
| New M'n | 19 4 22 mo. | 4 10 mo. | 3 58 mo | 3 46 mo. | 3 16 mo. |
| 1st Quart | 26 5 52 mo. | 5 40 mo. | 5 28 mo | 5 16 mo. | 4 46 mo. |


# AMERICAN AGRICULTURIST.

NEW YORK, JULY, 1879.


## Hints for the Work of the Month.

[*The Hints and Suggestions in these columns are never copied from previous years, but are freshly prepared for every month, from the latest experience and observations, by practical men in each department.*]

*Late Haying.*—The failure to gather the hay while it is at its best, is a too frequent and inexcusable neglect at this season. If farmers could be convinced of how much of the feeding value of hay is lost by leaving the grass to become ripe, hard, and woody, it would no longer be permitted.

*How to Cure Ripe Hay.*—Hay that has been cut late may be improved by curing it in the cock instead of drying it in the sun. Being comparatively dry when cut it is very soon cured; and if put up in cocks as soon as it is thoroughly wilted, it will heat and steam and become much softened, and will remain greener than if sun-dried in the swath.

*Cutting Wheat and Rye.*—If there was any doubt about the best time for cutting grain, the general experience last year went far towards settling the question. All over the country a hot spell came on just as the cutting became general, and the grain shrank badly. Had the harvest been a few days earlier, the total gain would have been enormous. In the writer's field, stopping the cutting for the 4th of July holiday last season, caused a loss of $100 in the quality of the grain and in shrinkage of weight and bulk. As soon as the grain is solid, but will still crush dry between the finger nails, it may be cut, and hot weather will not injure it in the shock as it will when standing. Dead ripe grain is not only less valuable, but the straw is worth less than if cut three or four days earlier.

*Hay Caps* will serve a good purpose upon grain shocks, and are much more secure than cap sheaves.

*Rake the Fields* after the grain has been drawn; the labor will be well repaid.

*Protect the Horses.*—A cotton sheet will be found a great protection to the horses working in the harvest field. It screens them from the heat, from flies, and from dust, and the labor of cleaning them is lessened. As mentioned last month, it will be found desirable, when horses are washed, to use a soft sponge and water in which some carbolic soap has been dissolved. This cools the skin, assists perspiration, removes the strong pungent smell, greatly refreshes the animals, and drives away flies. Where there is a river near by, a bath in the evening will be agreeable and safe, if the horses are kept in the water only two or three minutes, are driven home at once and rubbed dry.

*A Scraper for the Horses* may be made of a piece of old scythe, with the edge dulled on the stone; with this the sweat or moisture, after washing, may be easily removed.

*Green Feed for Horses.*—Give a share of the green fodder when horses do not run at pasture. If at pasture at night, a generous feed should be given before they are turned out.

*Corn* should not be neglected in the hurry of harvest. Frequent cultivation hastens growth and the maturing of the crop. To see the difference, leave a row or two uncultivated. Much hand work later in the season may be avoided by a little work with the cultivator, and by keeping the weeds down.

*Fodder-Corn* may yet be sown. A rye or wheat stubble may be plowed and planted in drills with 3 bushels of corn per acre. The large Western or Southern corn, or Evergreen Sweet Corn, may be used. Some extra good ammoniated superphosphate, with potash added, or special corn-fodder fertilizer, should be sown broadcast and harrowed in before planting. Dropping the fertilizer in the drill does not answer well for corn when other manure is not used broadcast.

*Roots.*—Sow Ruta-bagas early this month, and White Turnips later. Superphosphate of lime, or fine bone dust, is specially adapted for these crops. A stubble may be prepared for them by giving one good plowing and harrowing; a cross harrowing a week later will kill many small weeds. One of the hand garden drills will sow these small seeds. The ridger or marker, described last month, page 225, will be found very useful in preparing the ground for these crops.

*Potatoes.*—After early potatoes are dug for market, they may be followed by

*Cabbages.*—In planting late cabbages on potato ground there is no need to plow the whole area before planting. Plow open furrows, 3 feet from center to center, and mark out by cross furrows 2 feet apart. Drop a forkful of manure at each crossing, close the furrows over the manure, and set the plants in the lines of the cross furrows. After the planting is finished the ground may be worked out with a light plow or a cultivator.

*Fodder Crops.*—Hungarian Grass, common Millet, or the Golden Millet, may be sown this month for green fodder or hay. A bushel of seed per acre may be sown, though rather thick seeding, the fodder will be all the finer and better for it. Millet that was sown in May should be cut before the seed is ripe or the fodder gets hard, unless the seed is wanted. Millet seed makes an excellent addition to ground feed when mixed with corn and rye.

*Buckwheat* may be made profitable upon a piece of rough or newly cleared ground. No other crop is so effective in mellowing rough cloddy land. The seed in northern localities should be sown before July 12th; otherwise early fall frosts may catch the crop. Grass and clover may sometimes be sown successfully with buckwheat this month.

*Seeding to Grass alone.*—Last year the writer sowed a piece of fallow ground to Orchard-Grass and Clover, on the first day of August. The ground was thoroughly prepared in July, and was top-dressed with short manure harrowed in. Three bushels, 42 lbs. of Orchard-Grass seed, and half a peck of clover were sown, and covered by drawing a smoothing plank diagonally across the harrow marks. This covered the seed evenly, and smoothed the ground. The present year one crop of hay, equal to 2 tons per acre, was taken in May, and the after growth will give a second crop this month or next.

*Cows.*—A cool, dark, clean stable for the cows, is for many reasons preferable, to a hot pasture in the middle of the day. Cows that have been kept up on moderate feed, will shrink in their milk, on being turned into a luxurious pasture on a hot day. Dry

earth or sand makes a better bedding than straw during the hot season.

*Artificial Food.*—Butter dairymen, will find some of the artificial foods profitable to feed with green fodder or pasture. Scouring caused by green feed, may be stopped at once, by giving the cow 2 quarts of dry cotton-seed meal.

*Sheep.*—Keep ewes intended for the butcher by themselves, and feed liberally. A quart of mixed ground feed or bran, and oil-cake meal, will soon bring them into marketable condition. Keep store sheep in a light pasture, and give a handful of feed daily. Provide shade of some kind.

*Dysentery in Sheep*, is to be guarded against. Ailing sheep will retire from the flock, and may not be found until too late, unless the flock is watched and counted frequently. As soon as a looseness of the bowels is perceived, the sheep should be moved to a cool shed, and one ounce of castor oil be given. A bran or oatmeal mush will be beneficial.

*Flies of all kinds* are now very troublesome, and should be watchfully guarded against. (See hints for last month). If maggots are found upon the sheep, apply tar and grease, (rancid butter or lard) to the parts, and clip off the wool closely. Carbolic sheep-dip, and other preparations of carbolic acid, may be used to prevent attacks.

*Pigs.*—Young pigs may be made ready for market, in 100 days if desired, by good feeding. The sow should be well fed with rich slop, to force a good flow of milk, and a feeding place for the pigs should be provided, in which they can get spare milk with a little fine ground barley meal or wheat middlings.

*Poultry.*—The flock should now be weeded out; all unprofitable fowls, poor layers, and poor mothers, should be used or marketed. Two weeks feeding in a coop will be sufficient to make them fat. A few of the best old hens may be kept over for early setting, but many in a flock are unprofitable.

*The utmost cleanliness* should be preserved about the premises in the hot weather. All wastes and garbage should be disposed of on a compost heap; a load of good soil and sods from fence rows will be useful, as the basis for it. Weeds should be gathered and added to the heap. Liberal additions of plaster will prevent disagreeable odors.

*Pure drinking water* is of the first importance. More dangerous poisons are taken into the system with the water used, than in any other way. That from brooks is dangerous, as wash from manured fields, and soakage from the soil flows into them. Water from clear wells and springs only, should be given to cattle, and if such precaution is needed for them, it is equally so for the owners. Much avoidable disease is due to impure water.

## Notes on Orchard and Garden Work.

While these Notes are made anew each month, there must, from the nature of the case, be some repetition. Sometimes repetition is useful; for example, we have in several years past repeated—not in the same language, to be sure, but the fact, that cultivators of the soil, whether farmers, orchardists, or gardeners, become too thoroughly fixed to the soil, and to their own special portion of it. No people more need recreation than they, and none take less. Then in no pursuit is travel so instructive as in that of the cultivator. It is hardly possible for one intelligent gardener or orchardist, to visit the grounds of another, without learning something. When the warm months come, we advise all who can possibly do it,—and most can if they will, to go away from home for a few days, if for recreation only—well; if for both recreation and instruction,—better. Nothing enlarges ones ideas so much, as to see and talk with others in the same occupation. No money expended gives a better return than that invested in judicious travel. Of course, one is not expected to go off and "let his pursley get ahead of him," but the work should be planned in advance with this absence in view.... The hoe and horse-cultivator should be frequently used, especially if there have been rains. The weeds are easily killed by the hot sun, if uprooted.

### Orchard and Nursery.

*Marketing.*—The marketing of early fruits, will be a large part of the work of the month. See that crates, baskets, and other packages are at hand, and are tidy, and neatly marked; always assort the fruit, making three grades, firsts and seconds for market, and the third for the pigs. Pack so tight, that it cannot bruise in transit.

*Pruning* can be done in this month. Look to an open head to the tree, that the sun and air may reach the interior.

*Grafts* will need attention as directed last month. Pinch all those that are growing too vigorously.

*Thinning.*—Though rather late, it will still pay in the apple and pear orchards. The first thinning is rarely sufficient. Better remove the excess even though the fruit is of some size; that which remains, will be enough better, to pay for the labor.

*Budding* should be done as soon as the buds are mature, and the bark of the stock rises readily. Several have asked us to describe the method of budding. It is not practicable to repeat such matters every year. In August, 1877, we gave plain directions with engravings; that, or any other number may be had, post paid, for 15 cents.

*Insects.*—Destroy any *Tent Caterpillars'* nests that may have escaped earlier notice. The *Codling Moth* is best caught by bands of cloth or of heavy paper, placed around the trunks; these should be removed once a week, and all worms found under them, killed. Let the hogs eat the wormy wind-falls.

*Slugs* on cherry and pear trees, can be killed by dusting with lime from a muslin bag tied to a pole.

*Blight.*—If this appears, there is but one thing to do, cut away the blighted twig, branch, or whole tree, as the case may be. Cut down to bright sound wood, and burn the removed portions.

*Young Trees.*—The nursery rows should be kept clear of weeds. The horse-hoe will reach most of these. Use a short whiffle-tree, wound with cloth, or otherwise protected. Beds of seedlings must be weeded by hand. They should be shaded and watered if the weather is dry. If seedling evergreens damp off, sift dry sand upon the bed.

### The Fruit Garden.

*Grape Vines.*—In spring we directed that vines planted then should be allowed to bear but a single shoot. It is well to wait until the vines are older before putting up a trellis; a stake 5 or 6 feet out of the ground will answer for the first two years. Keep the shoot tied up to this; if other shoots start from the root or the old wood, remove them. In the axil of each leaf, or where the leaf joins the stem, a shoot may appear, this is a *lateral*, do not remove it entirely, but pinch all off but one leaf; if it makes another start, pinch that back to one leaf, and so on, should it start again. Should the vine reach the top of the stake, let it take care of itself. If the vine was planted last year, and two shoots are grown, keep these tied to the stake and treated in the same way. On established vines, keep the laterals pinched as above, and when the shoots are as long as desired, stop them by pinching. Insects that now appear are mostly those that can be hand-picked.

*Mildew.*—Keep a careful watch, and if whitish patches appear on the underside of the leaf, the growing shoot, or the fruit cluster, use sulphur at once. Bellows for the purpose are sold at the seed and agricultural warehouses. Sift the sulphur before putting it into the bellows, and in using the bellows so manage it that a light cloud of the sulphur will be scattered, to settle upon the vines. Choose a calm day. Repeat the sulphur after a rain.

*Strawberries.*—If grown in single rows, remove the mulch when the picking is over, fork in manure, keep the ground clear of weeds, and remove the runners. If the alternate system is followed, the spaces that have been used as paths this season are to be manured, forked up, and raked level to make a rich fine bed into which the runners from the old plants are to be directed. If pot layering is practised, layer the earliest runners. This is to be commended for private gardens; it is simply to sink in the soil small pots filled with rich soil, under the runners as they appear; place the runner on the soil of the pot, and put a clod on the stem to hold it until it has taken root. When the pots are filled with roots, turn out the balls of earth and set them in a new bed. Plants so treated will go on and grow and bear a good crop next year.

*Blackberries and Raspberries.*—Treat all plants that come up, and are not wanted for next year's fruiting as weeds. Those to grow should be stopped by pinching at 6 feet for Blackberries and 4 ft. for Raspberries. When the fruit is off of either, cut out the old canes that have borne it.

*Currants.*—The long weak shoots that push from the interior are to be broken out, and also all others not needed. Pick the fruit early, as soon as well colored, for jelly, but for table use let it be thoroughly ripened.

### Kitchen and Market Garden.

Have no waste ground where weeds may grow. When the early crops are off, clear and plant again.

*Asparagus.*—Pull such weeds as appear, and if the Asparagus Beetle is discovered, cut away the branches on which their eggs are placed.

*Beans.*—Plant for late; the Refugee is best for salting and pickling. Pinch the Limas when they have reached the top of the pole.

*Beets.*—Sow for succession of young roots and to supply beet greens. Sow only early sorts now.

*Cabbages.*—Set out for late crop. They need rich soil, and must be kept clean and watched for worms. Catch the white butterflies early in the morning, when they are slow in moving.

*Celery.*—Set in rows three feet apart and six inches in the row on the level, in well manured soil. The trench system has nearly gone out of practice.

*Carrots.*—Thin; hoe until the tops prevent further work among them.

*Corn.*—Plant early sorts for late use and drying. Save seed from best specimens of the early crop.

*Cucumbers.*—Dust with ashes or lime to keep off striped beetle.

*Egg Plants* can be forced by the use of liquid manure. Keep the fruit off the ground by placing straw under it. If Potato Bugs abound, it is difficult to save the egg plants without daily vigilance.

*Melons.*—Remove late sets that would not ripen. Save only pure seed. Turn to secure even ripening.

*Onions.*—Harvest as soon as the tops die down. Store in a cool airy place.

*Sweet Potatoes.*—Do not let the vines root. Move them when hoeing by lifting with the hoe handle.

*Squashes.*—Keep clear of bugs by hand-picking. Let the vines strike root at the joints.

*Tomatoes.*—Keep from the ground by frames or trellises. Brush or hay is better than nothing.

### Flower Garden and Lawn.

Everything should be kept in good order. Mow the lawn when it needs it....Remove large weeds that may start up....If the weather is dry, water should be used freely....The edgings to beds and walks should be kept neatly cut....Bedding plants need much care now, as they will grow rapidly, and will often need the knife....Cut away flower clusters of plants cultivated for their foliage, and trim and shape to suit the design....Tall flowering plants, like Dahlias, Gladioluses, Lilies, etc., will require stakes. Do not use unsightly devices for holding up plants; straight stems of shrubs are better than painted sticks....Climbers should not be allowed to fall away from their supports.... Keep the ground clean around perennials; and save seed of all plants as they ripen.

### Greenhouse and Window Plants.

This is a difficult time of year to keep the greenhouse looking attractive. Shading must be used. Whitewash is the cheapest—muslin on the outside of sash is perhaps the best....Frequent sprinkling of walks, etc., is necessary to keep the rooms cool. ....Fumigate at frequent intervals, and allow a good circulation of pure air....If the weather is dry, it is a good time to get and store the year's supply of sphagnum moss from the peat bogs.

## Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, from our record kept daily during the year, show at a glance the transactions *for the month ending June 13th*, 1879, and for the corresponding period last year:

1. TRANSACTIONS AT THE NEW YORK MARKETS.

| RECEIPTS. | *Flour.* | *Wheat.* | *Corn.* | *Rye.* | *Barley.* | *Oats* |
|---|---|---|---|---|---|---|
| 27 d's *this* m'th.. | 447,000 | 4,510,000 | 3,107,000 | 385,000 | 339,000 | 952,000 |
| 26 d's *last* m'th.. | 391,000 | 3,769,000 | 2,441,000 | 297,000 | 351,000 | 938,000 |
| SALES. | *Flour.* | *Wheat.* | *Corn.* | *Rye.* | *Barley.* | *Oats.* |
| 27 d's *this* m'th | 502,000 | 10,763,000* | 6,215,000* | 603,000 | 101,000 | 1,469,000* |
| 26 d's *last* m'th | 441,000 | 8,504,000* | 5,763,000* | 474,000 | 382,000 | 1,307,000 |

* Including sales for forward delivery.

2. *Comparison with same period at this time last year.*

| RECEIPTS. | *Flour.* | *Wheat.* | *Corn.* | *Rye.* | *Barley.* | *Oats.* |
|---|---|---|---|---|---|---|
| 27 days 1879.. | 447,000 | 4,510,000 | 3,107,000 | 385,000 | 339,000 | 952,000 |
| 26 days 1878.. | 341,000 | 4,812,000 | 3,617,000 | 646,000 | 307,000 | 811,000 |
| SALES. | *Flour.* | *Wheat.* | *Corn.* | *Rye.* | *Barley.* | *Oats.* |
| 27 days 1879.. | 502,000 | 10,763,000 | 6,215,000 | 603,000 | 101,000 | 1,469,000 |
| 26 days 1878.. | 413,000 | 5,409,000 | 4,815,000 | 741,000 | 229,000 | 1,973,000 |

3. *Stock of grain in store at New York.*

| | *Wheat.* bush. | *Corn.* bush. | *Rye.* bush. | *Barley.* bush. | *Oats.* bush. | *Malt.* bush |
|---|---|---|---|---|---|---|
| June 10,'79.. | 1,984,368 | 744,320 | 118,773 | 128,542 | 217,046 | 84,549 |
| June 11,'78.. | 1,487,700 | 676,626 | 148,389 | 197,507 | 603,152 | 238,285 |

4. *Exports from New York, Jan. 1, to June 12.*

| | *Flour.* bbls. | *Wheat.* bush. | *Corn.* bush. | *Rye.* bush. | *Barley.* bush. | *Oats.* bush. | *Peas.* bush. |
|---|---|---|---|---|---|---|---|
| 1879.. | 1,316,000 | 18,872,918 | 13,873,494 | 1,848,600 | 100,800 | 326,400 | 173,450 |
| 1878.. | 1,119,950 | 20,252,242 | 10,805,561 | 1,904,500 | 1,477,800 | 747,400 | 252,200 |

CURRENT WHOLESALE PRICES.

| | May 12. | June 13. |
|---|---|---|
| FLOUR—Super to Extra State | $3 40 @ 4 35 | $3 40 @ 4 35 |
| " Super to Extra South'n. | 3 40 @ 6 75 | 3 45 @ 6 75 |
| " Extra Genesee | 4 40 @ 6 00 | 4 40 @ 6 00 |
| " Superfine Western | 3 40 @ 3 90 | 3 40 @ 3 80 |
| " Extra Western | 3 65 @ 9 00 | 3 75 @ 8 75 |
| " " Minnesota | 3 65 @ 8 75 | 3 75 @ 8 75 |
| RYE FLOUR, Superfine | 2 85 @ 3 40 | 2 90 @ 3 50 |
| CORN-MEAL. | 2 10 @ 2 40 | 1 90 @ 2 25 |
| OAT MEAL, ₩ bbl | 2 75 @ 5 75 | 2 75 @ 6 00 |
| WHEAT—All kinds of White. | 95 @ 1 17½ | 1 00 @ 1 18½ |
| " Red and Amber | 95 @ 1 17½ | 95 @ 1 22 |
| " Spring | 77 @ 1 06 | 74 @ 1 06½ |
| CORN—Yellow | 45 @ 55 | 43½@ 55 |
| " White | 45 @ 52 | 45½@ 51½ |
| " Mixed | 44 @ 47 | 40 @ 44½ |
| OATS | 30 @ 42 | 36 @ 45 |
| RYE | 58 @ 64 | 59 @ 65½ |
| BARLEY | 40 @ 95 | Nominal. |
| HAY—Bale, ₩ 100 lbs | 30 @ 80 | 30 @ 80 |
| STRAW, ₩ 100 lbs | 30 @ 55 | 35 @ 60 |
| COTTON—Middlings, ₩ lb | 12¾@ 12⅞ | 12⅛@ 13 |
| HOPS—Crop of 1878, ₩ lb | 5 @ 13 | 5 @ 12 |
| " " 1877, ₩ lb | 2 @ 4 | 2 @ 4 |
| " olds, ₩ lb | 1 @ 2 | 1 @ 2 |
| FEATHERS—Live Geese, ₩ lb | 35 @ 46 | 35 @ 47 |
| SEED—Clover, West. & St.₩lb | 6 @ 7 | Nominal. |
| " Timothy, ₩ bushel | 1 20 @ 1 40 | 1 20 @ 1 37½ |
| " Flax, ₩ bushel | — @ — | Nominal. |
| TOBACCO, Kentucky, &c., ₩ lb. | 2½@ 11½ | 2½@ 11½ |
| " Seed Leaf, ₩ lb | 5 @ 40 | 5 @ 40 |
| WOOL—Domestic Fleece, ₩ lb | 18 @ 37 | 20 @ 40 |
| " Domestic, pulled, ₩ lb | 16 @ 34 | 13 @ 36 |
| " California | 9 @ 22 | 10 @ 25 |
| TALLOW, ₩ lb | 6¼@ 6⅜ | 5⅞@ 6 |
| OIL-CAKE—₩ ton | 27 50 @27 75 | — @29 00 |
| PORK—Mess, ₩ barrel | 9 00 @10 00 | 9 30 @10 25 |
| " Extra Prime, ₩ barrel | 9 50 @10 25 | 8 75 @ — |
| BEEF—Extra mess | 10 50 @11 50 | 10 50 @11 50 |
| LARD, in trcs. & bbls, ₩ 100 lb | 6 15 @ 6 67½ | 6 35 @ 6 85 |
| BUTTER—State, ₩ lb | 7 @ 19 | 5 @ 17 |
| " Western, poor to f'cy, lb. | 5 @ 19 | 4 @ 17 |
| CHEESE | 2 @ 8 | 2 @ 7½ |
| EGGS—Fresh, ₩ dozen | 10½@ 12 | 10 @ 14 |
| POULTRY—Fowls, ₩ lb | 9 @ 14 | 8 @ 12 |
| " Chickens, ₩ lb | 20 @ 35 | 22 @ 35 |
| " " ₩ pair | 75 @ 1 40 | — @ — |
| " Roosters, ₩ lb | 5 @ 7 | 4 @ 5 |
| Turkeys—₩ lb | 12 @ 18 | 8 @ 18 |
| Geese, ₩ pair | 75 @ 2 00 | 75 @ 2 00 |
| " ₩ lb | — @ — | — @ — |
| Ducks, ₩ pair | 50 @ 90 | 40 @ 70 |
| " ₩ lb | — @ — | — @ — |
| Capons, ₩ lb | 20 @ 25 | 20 @ 25 |
| SNIPE, per doz | 50 @ 2 00 | 40 @ 2 00 |
| PIGEONS, ₩ doz | 30 @ 3 25 | 25 @ 1 00 |
| PLOVER, ₩ doz | — @ — | 1 50 @ 1 75 |
| APPLES, ₩ barrel | 1 00 @ 2 50 | 1 00 @ 2 75 |
| ORANGES, ₩ bbl | — @ — | — @ — |
| " ₩ box | — @ — | — @ — |
| STRAWBERRIES, ₩ quart | 25 @ 75 | 3 @ 10 |
| CHERRIES, ₩ lb | — @ — | 5 @ 12 |
| POTATOES, ₩ bbl | 2 00 @ 3 50 | 2 25 @ 3 25 |
| " new, | 5 00 @ 7 00 | 2 25 @ 6 50 |
| " Sweet, ₩ bbl | 2 75 @ 3 50 | 2 75 @ 3 25 |
| TURNIPS ₩ bbl | 1 25 @ 1 75 | 1 50 @ 2 00 |
| " white, ₩ 100 bunches. | — @ — | 2 75 @ 4 00 |
| TOMATOES, new, ₩ small box. | 75 @ 1 00 | 30 @ 50 |
| " ₩ crate | — @ — | 1 25 @ 2 50 |
| RADISHES, new ₩ 100 bun. | 75 @ 1 00 | 25 @ 50 |
| BEANS—₩ bushel | 1 15 @ 3 00 | 75 @ 1 50 |
| PEAS—Canada, in bond, ₩ bu | 75 @ 78 | 74 @ 75 |
| " new So., ₩ bbl | 50 @ 1 00 | 1 00 @ 1 50 |
| STRING BEANS, new, ₩ bush. | 75 @ 1 25 | 1 00 @ 3 50 |
| BROOM-CORN | 2 @ 6½ | 2 @ 6½ |
| BEETS, new, ₩ 100 bunches. | — @ — | 2 50 @ 4 00 |
| ASPARAGUS, new, ₩ doz. bun. | 1 50 @ 3 25 | 1 00 @ 1 50 |
| CABBAGES—₩ 100 | 2 00 @12 00 | 50 @ 5 50 |
| SPINACH, So., ₩ bbl | 75 @ 1 00 | — @ — |
| ONIONS—₩ bbl | 2 00 @ 3 00 | — @ — |
| " ₩ crate | 1 25 @ 1 50 | 75 @ 1 25 |
| SQUASH, ₩ crate | 2 00 @ 4 00 | 50 @ 75 |
| CUCUMBERS, new, ₩ crate | 1 00 @ 3 00 | 1 00 @ 2 25 |

Business in the Breadstuff line has been again on a liberal scale, and generally at stronger prices. Flour has been more sought after, in good part for export, at hardening rates, on comparatively moderate offerings, especially of the more desirable classes of Extras of both Spring and Winter Wheat product; regular shipping Extras having been unusually scarce. Wheat has been quoted higher, and at the close strong at the improvement, the stock having been well concentrated and held under firm control, largely on speculative account. The demand has been quite brisk, export buyers operating freely. Crop and weather reports have been of an unsatisfactory tenor. Cable advices have been of stronger markets. Corn has been in better supply and pressed for sale, leading to a decline on an active movement. Extensive shipments of Wheat and Corn—notably of Corn—have been reported from first hands, in the way of through freight from the West. Rye has been in very good request, at slightly advanced figures. Oats have been in more urgent demand for prompt and forward delivery, at a sharp advance, though closing irregularly ...Hog products have been quoted dearer and fairly active. Beef and Beef Hams quiet at former rates. Butter and Cheese lower on free offerings, and a moderate inquiry....Wool has been of very ready sale at a further improvement, closing strong, on a meagre supply of desirable qualities in the seaboard markets....Cotton has been less active, and at the close quoted lower and weak....Hops quiet at about former quotations....Hay in less request at easier prices. Straw wanted at full figures....Tobacco in fair demand and steady....Petroleum declined sharply, and left off at about the lowest figures known to this interest, on a liberal supply and moderate call from shippers.... Naval Stores also weaker and slow of sale....Ocean freights closed somewhat firmer, with a better demand reported for accommodation for early use, especially for Grain, Flour, Petroleum, Provisions, Lumber, and Coal.

### Prices of Feed.

| | |
|---|---|
| Bran, per ton | $16.00@$18.00 |
| Middlings, per ton | 19.00@ 20.00 |
| Ground Feed, per ton | 21.00@ 23.00 |
| Linseed-oil-cake, western, per ton | 35.00@ 40.00 |
| Cotton-seed-cake, per ton | 25.00@ — |
| Chandler's Scraps, per lb | 2@ 3 |

### Prices of Fertilizers.

| | |
|---|---|
| Nitrate of Potash (95 per cent.), per lb. | 9 @9½c. |
| Sulphate of Potash (potash 44 per cent) per lb. | 3 @3¼c. |
| do. do. (potash 27½ per cent) per lb. | 1½@1¾c. |
| German Potash Salts (potash 12 to 15 p. c. p. ton. | $15.00@18.00 |
| Muriate of Potash (potash 50 per cent), per lb. | 2 @2¼c. |
| Nitrate of Soda, per lb. | 3⅞c.@4¼c |
| Sulphate of Ammonia (25 per cent.), per lb. | 4½c.@4¾c. |
| Dried Blood (ammonia 13 per cent) per ton | $40.00@45.00 |
| No. 1. Peruv. Guano 10 p. ct. ammonia, standard, ₩ ton | $56.50 |
| do. do. Lobos, do. do. do. | 47.50 |
| do. do. guaranteed, ₩ ton, cargo K | 56.00 |
| do. do. rectified, per ton, 9.00 p. c. | 65.00 |
| do. do. do. do. 3.40 p. c. | 51.00 |
| Soluble Pacific Guano, ₩ ton | 45.00 |
| Excelsior Fertilizer Works, Fine Ground Raw Bone, | 55.00 |
| Mapes' Complete Manure (clay soils) per 1,000 lbs. | 25.00 |
| do. do. do. (light soils) per 1,000 lbs. | 25.00 |
| do. do. do. "A" Brand, (for wheat) per 1,000 lbs. | 30.00 |
| do. Fruit and Vine Manure, do. | 17.50 |
| do. Bone, strictly pure, meal per ton | 42.00 |
| do. do. do. medium do. | 36.00 |
| do. do. do. dissolved do. | 42.00 |
| do. Cabbage and Cauliflower Manure per 1,000 lbs. | 23.00 |
| do. Corn do. per 1,000 lbs. | 23.75 |
| Stockbridge Corn Manure, per acre | 20.00 |
| " Potato do do | 10.00 |
| " Tobacco do do | 50.00 |
| " Rye do do | 10.00 |
| " Wheat do do | 15.00 |
| Bowker's Hill and Drill Fertilizer, per ton | 45.00 |
| Baugh's Raw Bone Phosphate, per ton | 33.00 |
| Baugh's Manure for Tobacco and Grain, per ton | 45.00 |
| Walton, Whann & Co.'s Raw Bone Phosphate | 40.00 |
| Gypsum, Nova Scotia, ground, per ton | 8.00 |

### New York Live-Stock Markets.

RECEIPTS.

| WEEK ENDING | *Beeves.* | *Cows.* | *Calves.* | *Sheep.* | *Swine.* |
|---|---|---|---|---|---|
| May 19 | 12,332 | 198 | 6,230 | 33,501 | 30,280 |
| May 25 | 10,179 | 47 | 5,092 | 31,240 | 36,403 |
| June 2 | 11,325 | 65 | 5,589 | 31,213 | 34,196 |
| June 9 | 8,758 | 43 | 4,314 | 30,870 | 34,336 |
| *Total for* 4 *Weeks* | 42,594 | 260 | 21,225 | 126,824 | 135,215 |
| do. *for prev.* 4 *Weeks* | 39,904 | 257 | 18,670 | 90,680 | 137,927 |

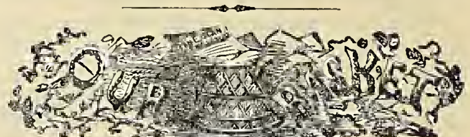
| | *Beeves.* | *Cows.* | *Calves.* | *Sheep.* | *Swine.* |
|---|---|---|---|---|---|
| *Average per Week* | 10,648 | 65 | 5,306 | 31,706 | 34,804 |
| do. do. *last Month* | 9,976 | 64 | 4,667 | 22,670 | 34,482 |
| do. do. *prev's Month* | 8,850 | 65 | 2,303 | 20,903 | 28,729 |

The prices for the past four weeks were as follows:

| WEEK ENDING | *Range.* | *Larger Sales.* | *Aver.* |
|---|---|---|---|
| May 19 | 8¼@10¾c. | 9 @ 9¾c. | 9¼c. |
| May 26 | 8 @10¾c. | 8¾@ 9½c. | 9 c. |
| June 2 | 6 @10½c. | 8¼@ 9¼c. | 8¾c. |
| June 9 | 8 @10¼c. | 8¾@ 9½c. | 9¼c. |

**Beeves.**—The extraordinary receipts and the unfavorable weather totally upset the market the past month, and prices fell off very largely. The first week opened with a decline of ¾c. ₩ lb, another ½c. was lost the second week, a further tumble occurred, and it was only in the last week under notice that the decline was stopped by a wise reduction of supply. Dressed beef shared the decline, and was at times unsalable at any price. A light supply improved matters, and ½c. ₩ lb was regained at one bound, with a brisk business. During the depression, heavy cattle were quite neglected, a significant circumstance for breeders, feeders, and shippers. Sales were made of 56lb Montana cattle at 9c., and Colorado at 8¾c. ₩ lb for export; good natives of 56lb at 8½@9½c., and 56 to 57lb average at 9½@10c.; and fancy selected steers at 10½c. ₩ lb. A hopeful feeling marked the close, and many cattle were held back for the further advance looked for....**Cows.**—Lower prices were paid for cows, which were in poor demand. The orders given by the Cattle Inspectors that cows sent out of the State should be closely examined for the detection of pleuro-pneumonia before shipment greatly restricts trade. It is obviously to the interest of dealers, and all others concerned, to quickly stamp out this contagious disease.... **Calves.**—The market opened lower under the general depression, but quickly recovered and advanced fully 1c. ₩ lb; closing actively at 3½@3¾c. for buttermilk; 4c. for coarse calves, and 4½@5½c. for prime veals, all for live weights. Fancy veals reached 6c. ₩ lb....**Sheep and Lambs.**—A gradual advance has been gained for sheep, and lambs have been steady. Common to fair sheep brought 3½@4½c. ₩ lb live weight; good to prime, 4¾@5½c., and lambs 5½@8½c. ₩ lb. Dressed mutton has sold freely at 7½@8½c., and lamb at 14@16c. ₩ lb....**Swine.**—Live hogs have been firm and steady at 3¾@4c. ₩ lb. City dressed is quoted at 4⅝@5⅛c. ₩ lb.

**Horse Market.**—A fair business has been done in horses, at $110@130 per head for common workers; light ones sell at $75 to $100 per head: heavy draft horses have brought $200@$325 per head; and there is considerable inquiry for carriage and coach horses, at from $200 to $400 per head for driving animals, and $900 to $1000 for fancy teams. Indian ponies have been introduced in the market, and sold readily at $100 @$150 per head for use in pony phaetons for park and road driving.



*containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of room elsewhere.*

**Clubs** can at any time be increased by remitting for each addition, the price paid by the original members: or a small club may be made a larger one at reduced rates, thus: One having sent 6 subscribers and $7, may afterwards send 4 names more and $3, making 10 subscribers for $10.00; and so for the various other club rates.

**Bound Copies** of volume 37, and of every previous volume back to Vol. XVI. (1857), neatly bound, with gilt backs, Index, etc., are supplied at $2 each (or $2.30 if to be sent by mail). See Publishers' Notes, 2d cover page.

**Read the Advertising Columns.**—Letters are daily received by the editors, asking where pigs, fowls, seeds, fertilizers, machinery, etc., can be procured. We consider all the information of this kind that is given in the advertising pages sufficient, if those needing anything will only look there; and can not find room to repeat what is already plainly told elsewhere. Every page of the *American Agriculturist*, including the covers, is interesting reading, and should all be carefully examined every month. In addition to looking after what one may want, the reading of what others have to say, in offering their wares, etc., starts up some new idea in the mind of the reader.—When writing to any advertiser, always tell him in what paper his advertisement was seen.

**The German Edition.**—All the principal articles and engravings that appear in the *American Agriculturist* are reproduced in the German edition. Besides these, there is a special department, edited by an eminent German cultivator. Our friends can do us a good service by calling the attention of their German neighbors and friends to the fact that they can have the paper in their own language, and those who employ Germans will find this Journal a most useful and acceptable present.

**Sending Papers.**—Those who wish to bring to our notice an article in a local, or other paper, should direct the paper to "The Editors," and mark the article so plainly that it will catch the eye at once. If the paper is directed to "The Orange Judd Company," and the article is not marked, the clerk who opens the mail has no means of distinguishing the paper from one of the regular exchanges, and it fails to reach the editors. We have just torn up an accumulated file of letters and postal cards, informing us that papers containing such and such articles had been sent, but which, probably from disregarding the above, have failed to reach those for whom they were intended.

**Terms to New South Wales, New Zealand, Australia, Africa, etc.**—To several inquirers. Under the latest revision of the Postal Union Regulations the price of the *American Agriculturist*, (either English or German edition), including postage *prepaid* through, will be covered by 7 shillings sterling per annum. This applies to the above countries, and to all others embraced in the General Postal Union. The simplest mode of remittance is by Postal Money Orders, payable in London, to the order of Orange Judd Company. These can be readily cashed in N. Y. City at a slight discount, which the publishers will cheerfully pay. For Club rates, (postage included), see our second cover page, and reckon the dollar at 4s. 2d.

**Horticultural Exhibition.**—The spring exhibition of the N. Y. Horticultural Society opens just as we go to press. A brief visit enabled us to see that the exhibition, while not so full as some former ones, is not behind any in the character of the exhibits. We were surprised to see so few exhibitors of Strawberries; the principal collections were by E P. Roe, Cornwall-on-the-Hudson, N. Y., and E. & J. C. Williams, Montclair, N. J.

Forced Peaches were shown by Edward Huckens, and hot-house Grapes by John Eagan. The Parsons Sons Co., Flushing, N. Y., were strong in rare Evergreens, Japan Maples, and other new Japanese plants. Orchids were in larger numbers than at any former show; the collections of Isaac Buchanan and J. S. Bush being placed together made a rare display of these rare beauties. Peter Henderson's several collections occupied a large space; his specimen Coleuses and Geraniums being very fine, as were his cut flowers and a large number of miscellaneous plants. Wm. Bennett, of Flatbush, deservedly took a first prize for his stove and greenhouse plants, including Palms, Ferns, and many others, all showing excellent culture. A large specimen of the Pitcher-plant, *Nepenthes Hookeri*, in J. S. Bush's excellent collection, was one of the finest plants in the exhibition. Isaac Buchanan's Palms, Agaves, and other succulents, were conspicuous for their excellence. Woolson & Co., Passaic, N. J., exhibited a large collection of Hardy Perennials, which took the first prize in that class. While we cannot enumerate all the attractive features, we would not omit a large collection of native plants by C. R. Hexamer, of New Castle, N. Y., showing great industry in collecting and accurate knowledge in naming. There were, of course, many so-called Floral Designs, which, as a whole, we are glad to say were less horrible than these enormities usually are, and in bouquets were some of exquisite beauty.

**The Death of Silas Moore.**—Several weeks ago, we have not the date, there died, near Providence, R. I., one who made little noise in the world, but who lived a useful life. Silas Moore, well known in New England, was of a class of which we can not have too many, a nurseryman who could always be relied upon to give his customer good advice and good stock. He did much in a quiet way, and the present advanced condition of fruit culture in Rhode Island and the adjoining portions of Massachusetts and Connecticut is largely due to his influence. He was a regular attendant upon the meetings of the American Pomological Society, and kept himself well informed in all that related to fruit culture.

**The Indian Territory.**—"D. H.," and others. No part of this Territory, much less "14,000,000 acres," as the sensational circular says, is open for settlement. However unwise it may have been for the Government to make this reservation, the treaty will be observed until properly set aside, and those who are tempted by statements like those you send, to invade the Territory, will sooner or later find themselves in trouble. There is as yet an abundance of land in which to find a home without violating a sacred compact.

**American Veterinary College.**—The Annual Announcement of this Department of the University of the State of New York, states that the 15th year in the education of veterinary medical students just closed has been a most prosperous one. In consequence of the large increase of students, the Trustees have provided greater accommodations for the coming classes. The standard is being constantly raised, and certificates of collegiate or academic education, or a matriculative examination is required of all candidates. The course is a graded one, and stated examinations are held as in regular colleges. A *free scholarship* is offered to the U. S. Dept. of Agriculture, and one to each State Agricultural Society in the country. Application concerning these to be made by the Societies and Dept. on or before the first of September of each year. Accompanying the Announcement is a Report of the American Veterinary Hospital, a valuable Department of the College. During the year ending March, 1879, 1,895 animals were treated, of which 22 died, 24 were destroyed, and 1,850 relieved or cured. Free clinic patients treated, 462. A. Liautard, M. D. V. S., Dean of Faculty, and Chief Surgeon.

**Does Paris Green Poison the Potatoes?**—This is an important question, and though we have, in former years, given our reasons for asserting that there is *no danger* from this source, the repetition of the question makes it necessary to briefly go over the same ground again, to meet the doubts of new readers. It is true that some of this compound of arsenic will get into the soil, but the quantity will be less than $^1/_{900}$ of a grain for each square foot of the surface of the soil. It is a well established fact that nothing enters the plant except in solution in the water of the soil. It has been shown that the Paris Green soon combines with the oxide of iron of the soil and forms an insoluble compound. Professor R. C. Kedzie, of the Michigan Agricultural College, who has thoroughly investigated this question, concludes: "1st. Paris Green that has been four months in the soil, no longer remains as such, but has passed into some less soluble state, and is unaffected by the ordinary solvents of the soil. 2nd. When applied in small quantities, such as alone are necessary in destroying injurious insects, it does not affect the health of the plant. 3d. The power of the soil to hold arsenious acid and arsenites in insoluble form will prevent water from becoming poisoned unless the Green is used in excess of any requirements as an insecticide." If potatoes to which Paris Green had been applied were poisonous, we should have abundant evidence of it, since millions of bushels have been eaten during the past few years. The only source of danger is in the careless handling and use of the Green, and it should be kept and used with the full knowledge of its highly poisonous qualities, and no familiarity with it should lead to carelessness in handling or using it. Keep the poison carefully locked up, and the pails or whatever vessels are used in mixing and applying it where they can not be got at to be used for any other purpose.

**Bone Crusher.**—"J. T. B.," Great Falls, N. H. Bones cannot be crushed economically with one-horse power. From 5 to 7 are required; as the bones are very tough and hard to break up. The cheapest power is a steam engine, and an excellent mill is the Bogardus Eccentric; there are many mills made by other makers, and a lever horse-power would supply the force required.

**"Stony Point."**—The storming and capture of Stony Point by "Mad Anthony Wayne," was one of the brilliant and important acts in the war of Independence. The many readers of the *American Agriculturist* in Rockland Co., N. Y., where Stony Point is situated, and in Orange, Putnam, and Westchester Co's., N. Y., and in Bergen Co., N. J., all within easy reach of the Point, are reminded that the Centennial anniversary of its capture will be celebrated with much "pomp and ceremony," including a sham fight, to illustrate the real one, on the 16th of the present month. This occurs at a time when most of the neighboring farmers can well spare a day to recreation, and they will do well to devoting it to reviving the memory of the patriotic deeds of their forefathers.

**Silver's Berry Picker.**—This is rather a berry holder than a berry picker; it consists of a small rubber cup, so held by a loop around the other fingers as to leave the forefinger and thumb free. Its chief use is to avoid the holding of small herries in the hand until enough are gathered to transfer to the basket. For such small fruits as raspberries, huckleberries, etc., it will, no doubt, be found convenient.

**The Ensilage of Maize.**—The preservation of corn-fodder in the fresh state, by packing it in silos, or tanks, from which air is excluded, promises to be of so great importance to our farmers, that we would give all items of interest relating to it. We have already noticed the translation of M. Goffart's work, "The Ensilage of Maize," and its publication by J. B. Brown, Esq. We have now received a small pamphlet intended as a supplement to this work. This contains letters by M. Goffart, the author, and from others, and other matters of interest to those investigating the subject. As this has its title, "Addenda to Accompany the Ensilage of Maize," we presume that it will be supplied to those who have already purchased the book.

**A New Small Fruit Nursery.**—Mr. J. T. Lovett, for many years with A. Hance & Son, and later with E. P. Roe, has started in business for himself at Little Silver, Monmouth Co., N. J. We are glad to welcome in any branch of horticulture, those who have intelligence and enthusiasm combined with business ability, and we wish Mr. L. much success in his new enterprise.

**Reyburn, Hunter & Co.**—In May last we quoted from a letter by a Nebraska correspondent, an account of the operations of scamps who were operating in the lightning-rod swindle as pretended agents of Reyburn, Hunter & Co., of Philadelphia. Our correspondent wrote that "no such concern as Reyburn, Hunter & Co. is to be found in Philadelphia"—in this he was in error. There is such a concern, which has been long established and well known as reputable makers of lightning rods and other wares. The fact that the name was assumed by the Nebraska swindlers is, so far as it goes, a testimony to their respectability. That Reyburn, Hunter & Co. are well and favorably known is shown by the fact that a number of their friends have written to us to correct the error—which we do most cheerfully.

**Good News from Texas.**—It is a pleasant indication of progress in Texas to receive the circular of the North Texas Pomological Society. The Constitution is conveniently brief—in fact, a model in that respect; H. Tone is President, and T. V. Munson, Secretary. The meetings are held monthly, alternating between Sherman and Denison. We expect to see Texas a great fruit country in time, and such societies help greatly to this end.

**The Mass. Horticultural Society** offers a special prize of $25 for the best essay on each of the following subjects: Culture of Flowers and Foliage for Winter Decoration and the Market, with a list of the most desirable varieties; Profits of Farming and Gardening in New England; The most Promising new Hardy Ornamental Trees and Shrubs, and their tasteful and effective arrangement; Upon any Special Action of Fertilizers, illustrated by Accurate Experiments; Upon Flowers for the Home, with lists of the best Annuals, Herbaceous Perennials, and "Bedding Plants." These prizes are designed to elicit new facts, and preference will be given to essays which add the most to our stock of information. Competition open to all. For further information address Robert Manning, Secretary, Boston, Mass.

**"The Buckeye Still Victorious."**—Messrs. Adriance, Platt & Co., the makers of the Buckeye Mower, send a circular in which, with commendable pride, the above announcement appears in large letters. The circular states that at a "Grand Field Trial," held at Melle, France, on the 25th of May last, the "Buckeye" was awarded the First Premium, over eighteen of the leading machines that entered into competition with it. One more for the "Buckeye."—Next!....Agricultural inventors are coming to the front. Col. McCormick, to whom the world is indebted for the first practical Reaper, has just been elected by the French Academy of Sciences as a Correspondent in the Department of Rural Economy. A well deserved honor.

**Posies in Iron Pots.**—There has appeared this year, a new "design" for flower growing. A big iron pot—a veritable dinner pot—is slung to a tripod, and the flowers take the place of bacon and cabbage in the pot. To add to the absurdity, if possible, the pot is painted a dazzling vermillion red. We think this thing is intended to represent a gypsies' camp kettle. Next to the strangeness of the invention of such a thing, is the fact that people have actually been found to buy it. We have seen upon a city lawn, one of these gimcracks, and were sorely tempted to trespass and go in and kick the thing over, as corrupting the good taste of the community. Now who will invent a Floral Frying Pan, or a Horticultural Hog-trough? Either would be as sensible as this stew-pot.

**American Association for the Advancement of Science.**—This popular Association will meet at Saratoga, N. Y., on Aug. 27th next. These gatherings are very pleasant occasions without so much science as to interfere with various excursions and junketings. They are practically the annual "outings" of hard-worked professors and other men of science, who enjoy them much after the way of the unscientific. We would not imply that science is overlooked, for there is a plenty of it, and generally presented in a popular manner. F. W. Putnam, Salem, Mass., is Permanent Sec'y.

**A Horse Show** will be held by the Brockport Union Agricultural Society at Brockport, N. Y., to celebrate the 4th of July.—N. N. Beach is Secretary.

**Large Land Owners in Great Britain.**—According to the Parliamentary returns, as given in the "Financial Reform Almanac," 421 persons own an average of 54,348 acres each—amounting to 22,880,755 acres, or nearly one-third of the whole area of the United Kingdom of England, Ireland, Scotland, and Wales. A plot of 54,348 acres is equivalent to nearly 90 square miles, or a plot nearly 9½ miles square. If the occupant of such a plot resided at its center, he would have to go 4¼ miles in any direction to get off his own land. As the division is not equal, many own much larger estates than this. These 22,880,755 acres would furnish 228,807 persons with a 100-acre farm each, instead of being monopolized by 421 owners, as is now the case.

**"Pussley" or Purslane on the Table.**—"Pussley," in the older parts of the country at least, is regarded as the representative weed. To be "as mean as pussley," is a common adage. "He lets pussley get ahead of him," is applied to a slack, inefficient gardener, for in these hot July and August days, one must be smart if he keeps his garden free of "pussley." In midsummer days, when peas have gone, and the flush of sweet corn, Lima beans, and other late garden products has not come, "try Pussley"—*Portulaca* if the Latin name sounds better, or *Pourpier* if the French is preferable. We have passed months and months when "pussley," gathered upon the far western plains was the only accompaniment to our salt pork, and seemed then the best green thing we had ever eaten. We have tried it since, and can assure those who do not know it as a table vegetable, that it is most acceptable. For ourselves, did it not grow of itself, we should follow the example of the French, and cultivate it; they consume it as a salad and in soups, besides cooking it after the manner of spinach, or "greens." It should be taken when growing rapidly and its fat stems snap short and tender, and treated like other grass. In looking at an article on its culture in a French work on gardening, we find it ends thus: "We know of no injurious insect that attacks the *Pourpier*."—Neither do we—we wish we did.

**The New Compound Microscope an Excellent Investment.**—We should not so frequently refer to this instrument, if we were not sure that it is a most desirable treasure. We can think of no other investment of the same amount of money, except for absolutely necessary articles of food and clothing, that will be likely to bring so large a return of pleasure, enjoyment, and profitable instruction. Those who have only used a Simple Microscope, or a set of double or triple magnifiers, can hardly conceive of the developments and wonderful revelations of a good Compound Microscope like this one, which was devised specially for our readers, and named the "*American Agriculturist Compound Microscope.*" No one who has seen its power exhibited, has failed to express the greatest satisfaction and delight. Here is a tiny insect, a small flea, for example. The legs are scarcely visible to the naked eye, yet under this instrument the feet and end joints of the legs appear to be of a length of four or five inches, showing large "pinchers" like those of a lobster, while the legs are covered with hairs resembling great thorns, and a complicated structure is exhibited very clearly to the eye. Applying the Camera Lucida, the image is thrown down upon paper and then one can, with a pencil, draw it upon the paper, of any desired magnitude, as from one to four, five, or six inches in length. The dust upon the wings of butterflies and moths becomes a mass of beautiful scales or feathers, of remarkable form, and from one to several inches in length, according to the power of the instrument used, which can be changed at will to present the object magnified from 25 to 150 *diameters*, or many thousand times the natural surface or area. The smallest bit of fine polishing powder, sold as "Silicon," under this glass shows an infinite number of most regular organic forms of more exquisite beauty than anything shown by the best kaleidoscope. The great variety of insects, of plants, of dust, of foul water, etc., all present most striking objects to the eye. One of these instruments should be placed in *every* school, however small, and indeed one may well be in every household. The annual interest on the cost is only a few shillings; the pleasure to be derived from it by the young and old can hardly be reckoned in dollars and cents. We believe we have done a good work in bringing so valuable an instrument within reach of our readers, at a cost very far below anything of like value ever before produced. While the price to the public ($15) is exceedingly low, and unprecedented, it will be supplied to *our* subscribers for only $10. [And for the time being it is also offered as a present to any one sending in only ten *new* subscribers at the regular rate of $1.50 a year each. A full description is given in our May number, pages 172, 173. The opinions of some expert scientists will be found in June number, page 240.]

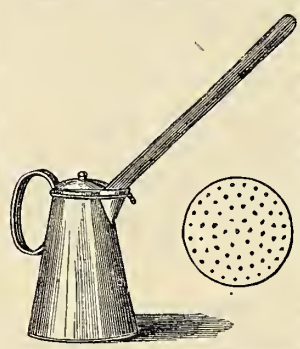
**Emery Wheels.**—"M. E.," New Lisbon, Ohio. You cannot make an emery wheel half so cheaply as you can buy one. Some of the mixtures to hold the emery are patented; the common method is to use a thick shellac varnish for this purpose. The Boynton × cut saw is best gummed by means of an emery wheel affixed to a lathe or mounted on a frame. Emery wheels can be procured from or through any dealer in hardware.

**Beauties of our Language.**—It has been said that the English is the only language, in which swearing is possible. It is a wonderful language in allowing a greater variety of profanity than any others, and in possessing a force which all others lack. The capacities of our tongue are not confined to the variety and strength of its "cuss-words," but its richness is shown by possessing a catalogue of official expressions, which common people are not to (or at least don't) use, but which are reserved for the great men of the land. "Entomological vermin," "Chuckle-headed, beetle-browed, long-eared jackass;" "Fiendish braying:" "Brawling liars," "Contemptible jackass;" "Jackasses scalp;" "The dirty work of tanning his hide," etc. These are specimens of richness, but we do not give them with the idea that any of our readers shall presume to use them. This is official, or we may say, court-language, and is only to be found in the correspondence of the U. S. Commissioner of Agriculture, who, whatever other qualifications he may have for the place he holds—but does not fill—at least knows about "Entomological vermin," and is a judge of the bray of the "Jackass." In this respect Le Duc is a success.

**Eastern and Western Corn.**—It is often stated, and is generally thought, that Eastern corn is of greater intrinsic value than that grown at the West. Professor R. C. Kedzie, of the Michigan Agricultural College, has recently published the analyses of 13 samples of Michigan Indian corn. Professor W. O. Atwater, of the Wesleyan University, Middletown, Conn., has compared these results with the analyses of several kinds of Connecticut and other corn, with the following results: "The average of albuminoids in the Michigan corn, (12.76 per cent), and of fat, (5.68 per cent) are slightly greater than those of the Eastern corn, (not sweet), here reported, (12.37 per cent albuminoids, and 5.55 per cent fat). It must be concluded then, from this comparison of 13 samples of corn grown in Michigan with 9 samples grown in Connecticut and North Carolina, that the average of Eastern and Western maize is nearly the same."

**Record of a Grade Jersey Cow.**—"T. B. S.," Wilmington Del., sends a record of a grade Jersey cow, as follows. "Susie," 5 years old, had her third calf Mar. 8, 1879. April 5, the calf was taken away, and since then the cow gave as follows: Week ending April 12, 135 quarts. April 19, 140 qts., April 26, 135 qts., to April 30, 4 days, 85 quarts, or over 20 quarts per day. 6½ days milk gave 10½ lbs. of butter. The cow was under the care of Mr. Phillip Farnan.

**Applying Paris Green.**—One of an ingenious turn of mind, who can readily adapt the means at hand to some new use, saves many a dollar in the course of a year. An example of this is shown in the manner in which Mr. G. H. Butler, Van Buren Co., Michigan, converts a coffee-pot, after it has served its proper uses, into a convenient duster for applying Paris Green to the potato-vines. A handle about 6 feet long is fastened into the spout of the coffee-pot, as shown in the engraving; the bottom, shown separate, just below the handle, is perforated with holes by means of an awl. Mr. B. prefers plaster for diluting the poison, and uses the small proportion of a heaping tablespoonful to one peck. He sifts the plaster and then thoroughly mixes in the Paris Green. He claims that, with a handle like this, one can stand erect and bring the duster very close to the plants, and that he can work very rapidly, applying the poison to 10 acres in one day. "No patent applied for."



**Cure for a Kicking Horse.**—"A. H. E." writes: The block suspended by a rope, (shown in June, p. 224), is generally a very effective cure for a kicking horse, but I have seen a horse use it as a plaything, kicking it high in the air and then jumping to one side of the stall while it swung by him. This horse was cured of kicking (and of pawing) in the stable by fastening to the foot he most used, a piece of trace (or pump chain), about two feet long. He couldn't jump away from that.

**Extraordinary Milking.**—Mr. F. Ratchford Starr reports that his Jersey cow "Filbert," gave in six months, 6,757 lbs. of milk, which was six and one-third times her own weight. A pure Ayrshire heifer, a little over 2 years old, and weighing 450 lbs., has given in the writer's dairy 4,080 lbs. of milk in 120 days, and is still maintaining the average yield of 34 lbs. daily. This heifer has given her own weight of milk in 13 days, or nine times her weight in 4 months. Her feed has been hay, with 4 quarts of ground feed and 2 quarts palm-nut meal, up to grass; it is now, (June), fresh cut grass and clover, with half the above feed. The butter yield is over 8 lbs. weekly, and cream for the use of a family besides. The Ayrshires do sometimes match the Jerseys.

**Ants in a Lawn.**—A subscriber living near Boston, has a plague of black ants; they have nearly ruined a place upon his lawn about 15 feet square. He has tried Insect Powder, Whale Oil Soap, Paris Green, Lime, Borax, and hot water, to no purpose. If any of our readers have had success in treating such a case, we hope they will inform him and others of the method through the *American Agriculturist.*

**Barn Weevils.**—In response to our request for information concerning the ridding of the barn or granary of grain weevils, we have but two replies. Mr. T. J. F. Smith, of Kent Co., Md., uses slaked lime; he dusts the bins with this before putting in the grain, and also after removing it....Mr. S. Harpold, Ellis Co., Texas, says that he used lime and also "China leaves," (the leaves of the "Pride of China," *Melia Azedarach*, a common ornamental tree all through the Southern States), without effect, the weevils appearing to increase. He then, noticing that their odor was strong, spread Fig-leaves upon the top of the wheat, and in less than a week there was not a weevil to be found. He this spring tried Fig-leaves upon cucumbers and squashes; a single leaf was placed in each hill, and there were no striped bugs to be found the next morning. Fig-trees are common in Virginia and southward. If found effective, they may be grown far North, by covering them in winter.

**Angora Goats.**—"R. S.," Lackawanna, Pa. The merits of the Angora goat consist chiefly in their fleece, and the ease with which they can be fed. They will thrive well enough in Northern Virginia, but as yet we can not point to a single instance in which any person has made a profit from them in any part of this country, except perhaps breeders who have sold animals to parties who have been induced to try to keep them.

**Feeding a Weaned Calf.**—"R. R. C.," Cohoes, N. Y. A young calf may be raised with a small amount of milk by substituting other food. Three quarts of milk daily may be sufficient, with the following additions: To one quart of milk add two quarts of thin gruel, made by boiling one quart each of linseed-meal, oatmeal, and corn-meal, or wheat middlings, in six quarts of water, straining, and reducing with six quarts more of boiling water. The mixture should be warmed to the temperature of new milk. Three feeds a day may be given; after one month increase one-half.

**Gophers.**—"S. F. S.," Lincoln, Neb. Gophers or ground squirrels are an intolerable nuisance all over the West, and are difficult to manage. Corn soaked in a solution of Sugar of Lead, or of Chloride of Tin, will kill them off, and this is possibly the best method to pursue with the pests, to save the planted corn.

**Hogs or Pigs.**—"G.," Hemfico, Va. The words Hog and Pig are used synonymously to express the same thing. A pig is not always considered as a small hog, but when light pigs are referred to, small ones are intended. In the West, pigs are hogs, elsewhere, hogs are pigs. A shote is a half or partly grown pig.

**How to make Concrete.**—"T. H.," Saybrook, Ill. Full directions for making and using concrete were given in the *American Agriculturist* for November, 1874. Any back number for the past 22 years may be had by mail, post-paid, on remitting 15 cents.

**Windgalls or Puffs.**—"J. R.," Carthage, N. Y. Windgalls are puffy swellings occurring along the tendons of the legs of horses, below the knee. They are the results of sprains or strains of the tendons, and are generally filled with synovial fluid, or lymph, or serum. A padded bandage, with astringent lotions applied two hours a day at first, adding two hours every day after, until it is kept on continually, is the usual remedy. Rest from work is helpful to a cure.

**Staining Chestnut Wood.**—"W. J. McC.," writes that when some chestnut timber that had been stored over a horse-stable was used, it was found to have acquired a rich color from the ammonia present in the stable. This led to the use of the Water of Ammonia (Hartshorn), for staining chestnut. The wood is rubbed with this two or three times, and when dry, varnished.

**"Rawle's Janet."**—"F. H.," Bangor, Kansas. The name "Never Fail" should be dropped, the true name of the apple being "Rawle's Janet." It is not of French origin, but according to Downing, who is very accurate in such matters, it originated on the farm of Caleb Rawle, Amherst Co., Va.

**Preparing Muck for Manure.**—"G. C.," Beltsville, Md. It is a great waste to burn muck. By keeping it a few months it will break down to a fine powder, and in less time, if it is put up in heaps with some lime or wood ashes. By mixing it with the manure from the stables, it will be in the best condition to put on the land, and will be specially useful on light, sandy soils. By burning it, all the nitrogen it contains will be lost, and in muck which consists chiefly of vegetable matter, this amounts to from one to three per cent, or more than is found in some fairly good manure.

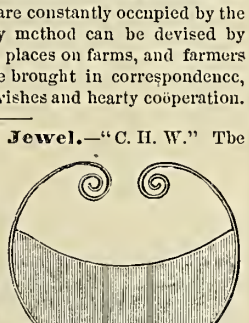
**Corn for Fodder.**—"E. R.," Raleigh, N. C. There is no need to try any questionable experiments in growing fodder when it is known that sweet corn will give an excellent crop in every way. Evergreen or Triumph sweet corn can hardly be excelled for this purpose, and until something turns up that is better, we should be satisfied with these. It will be wise to try any new thing, whether it be Amber Sugar Cane, Pearl Millet, or Comfrey in a small way for an experiment, but unwise to risk a crop, however highly the novelty may be commended.

**"Grass in the Market."**—"The quality of 'grass' depends much upon the way it is grown. Good 'grass' must not be cut too old. The canning of 'grass' is a large and paying business, and the 'grass' so put up is as nice as fresh 'grass.'"—Such is, essentially, a conversation we recently overheard between the proprietor of a New York commission house and a fellow merchant who does not deal in "grass." While in England it is customary to say "Sparrow-grass," in our markets the "sparrow" is generally cut off, and we have "grass" pure and simple, thus doing great injustice to the bird. We have heard it claimed that Asparagus was a corruption of "Sparrow-grass," hence those who are choice as to their language are careful to give emphasis to "Sparrow"—as some are particular to say "koo-cumber," to get as far as possible from the vulgar "*cow*-cumber." The name Asparagus is an ancient Greek one, and to correct it by calling it "Sparrow-grass" is no more proper than the common market abbreviation "grass."

**Tree Labels.**—"F.," Clarion Co., Pa., having noticed the various devices for permanent tree labels published from time to time, gives us the manner in which all his fruit trees are marked. The label, of any shape and size desired, is cut from half-inch white pine; one side is painted with white lead, and before it dries the name is written with a lead pencil. When dry, the label is so hung by a wire, that it will swing clear of the tree. The paint wears off, but the mark remains; some are 20 years old and perfect yet.—This is one of the very oldest methods of labelling trees, and we give it for the benefit of novices who may have overlooked it because it is so simple and old fashioned. When well done it is very satisfactory. Great care should be taken in hanging the label; the wire loop should be abundantly large, and should never be placed where it can work down to the crotch of the branch. If the labels are examined yearly, as they should be, this will be found as effective as any, being easily made and within the reach of all.

**A Boy Writes.**—"I desire to get on a farm to work, and write to you, thinking you may know of some farmer who wants a boy to work for him. I am 18 years old, strong, and healthy. I should like to get a place in Vermont or New Hampshire, but would go anywhere. Any information you can give," etc. We give this as a sample of many letters we receive in the course of a year. No doubt there is many a farmer who would be glad to get just such a boy. The trouble is that we have *no time* to give to such cases. We are constantly occupied by the work of the paper. If any method can be devised by which such boys who wish places on farms, and farmers who wish such boys, can be brought in correspondence, it will meet with our good wishes and hearty coöperation.

**The Cow-Sucking Jewel.**—"C. H. W." The jewel usually fixed in the nose of a self-sucking cow, or a calf that is difficult to wean, can be made by any tinsmith; a piece of strong tin plate or sheet iron is cut in a semi-circular shape, with a hollow in the straight side; a steel wire is soldered to the tin so that the ends, which are curved spirally, can be sprung into the nostrils of the animal, and so hold the jewel firmly and yet loosely. The jewel is shown in the annexed engraving.



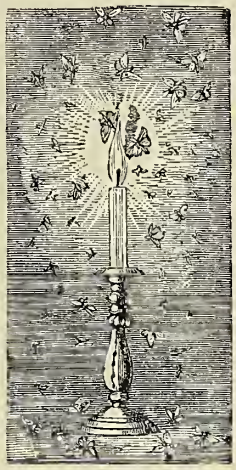
**Pocket Gophers.**—"W. H. E.," Texas Creek, Colorado. These are said to be readily poisoned with Strychnine, inserted in a small cavity in a bit of carrot, apple, or other vegetable food, and placed in their runs. Can any one give a better method of getting rid of them?

**An Energetic Farmers' Club.**—Jas. O'Neil, River View, Lyon Co., Iowa, reports that in his township, a new one with only 45 voters, there is an active Farmers' Club with a library of 300 volumes already in existence. It is safe to predict that that township will be found a good one for farmers seeking new homes in the West.

**Prices for Wool.**—"J. M.," La Fayette Co., Wis. The prices for wool are regularly quoted in our monthly market report. We have no means of knowing or guessing the future value of wool, or anything else, and object to giving even our opinion of such a matter, for obvious reasons. At present, quotations are strong, and the market is reported as favorable for a brisk business.

**Provide Shade for the Stock.**—Shelter from the burning sun may be provided by means of a cheap open shed of boards, or by throwing boughs upon a framework of posts and poles. Some such provision for the comfort of the stock should be made, as it is not only humane, but profitable. Better still is a little grove of trees of sufficient size only to make a good shade for the whole flock. A single tree is not usually enough—such comfort is often monopolized by the "master" of the flock or herd. It is cruel to turn a flock of sheep into a field where the only sign of a shadow is that cast by a fence, and it may be a wire one at that. The poor suffering animals will stand bare-backed in the hot sun with their heads under each other, endeavoring to make their own shade. Half a day's work will give them a shelter which will more than repay for the trouble.

## Sundry Humbugs.



There is no subject concerning which we receive more letters than about Wall Street speculations. At the risk of repeating we say—to answer many letters—that while some of those who advertise and send out circulars, showing how great gains may be made from small investments, are persons as to whose character and standing we can learn nothing; there are others doing the same thing who are reported to have abundant capital, and though not members of the regular Board of Brokers, have a good account with their bankers, and are regarded as safe in money matters. Our objection is not in this case to individuals, but to the whole system. Whoever invests in stock speculations at all, really takes a share in a game of chance, where the chances are *very largely* against him. We have stated once before, but in this case

REPETITION MAY BE USEFUL,

that the best comment upon the character of all stock speculations is to be found in the fact that, wherever there is a "defalcation," "breach of trust," or whatever soft name may be chosen for robbery of another's funds, the first question after the exposure is—"Did he go upon the street?" or—"Did he dabble in stocks?" This shows how such operations are regarded by business men. This does not apply to those who make dealing in stocks a regular business, but to those outsiders who gamble upon the fluctuations of the market. Another comment upon these speculations is,

THEY ARE ALWAYS DONE IN SECRET,

through some broker. No clerk or book-keeper in a reputable business house, no teller or other officer of a bank, no secretary, treasurer, or other person holding an office of trust in an Insurance or other Company would dare to let it be known that he engaged in stock speculations, for he knows in what repute they are held by all solid business men, and is aware that he would lose his place the moment it should become known to his employers. We repeat this once more to show to the many who write us, that where the business is carried on in all fairness, it is in its very nature too risky for persons of moderate means to engage in. It has all the fascination of gambling, and many a really honest man, having met with losses, has been tempted to *borrow* enough from his employers to redeem them, and at the time really intending to refund, and has come to ruin and the prison. So we say to those who write us—Let it alone. No matter what the character of those who present the attractive side, and show great gains—they do not publish the losses.

THE THING ITSELF IS WRONG.

Sometimes we are requested to show up a party as a "humbug," upon the mere assertion of the writer that he has been defrauded, without a particle of evidence, and sometimes without even a statement of the case. Still more strange are those who, without date, write accusations against certain Michigan parties in a large hand, saying "Ventilate 'em"—"A Victim."—Now we are in the ventilating business, but must inform this "Victim," and all other victims, that we can not do it without something to ventilate. We do not make exposures of humbugs at random. We hold that the accused has rights as well as the accuser, and we do not set a person down as a fraud

WITHOUT SUFFICIENT EVIDENCE.

Sensational charges amount with us to little; a calm statement of facts, supported by evidence, is what we need....Sometimes cases are presented in which we find it difficult to decide whether they are fraudulent or not. An example of this kind comes from Canada, in which the writer, being out of business, and seeing the attractive advertisement of a Chicago concern offering an attractive letter-copying contrivance on easy terms, sent for an outfit. He received the outfit, but failed to make copies of writing to his satisfaction. The writer says that he is "at loss to see what their (the Co.'s) object was, for I believe the books must have cost all they charged for them."—Our Canadian correspondent, who feels himself unfairly dealt with sends us specimens of the best copies he could make with his "outfit." We can only say that they are perfectly legible—a great deal more so than the usual copies taken in a copying-press. We give this as an example of many cases in which the thing, though it did not come up to the writer's expectations, is not necessarily fraudulent....Of late we have had several inquiries from the publishers of newspapers in various parts of the country concerning the

BANDANAH MANUFACTURING COMPANY,

which sends them an advertisement to be inserted for one year, and asking them to "draw upon at the expiration of each quarter." The fact that this "Bandanah" (what a name!) gives in its circulars no local habitation or address in New York, it can not want to be known to any great extent. Country publishers, and every one else, may be sure that a concern that gives neither street, number, nor Post-Office box, is not one that they can "draw upon at the expiration of each quarter" with any great success....In some of the Western States offers are made by which farmers can

RAISE MONEY UPON THEIR FARMS,

upon apparently easy terms. A correspondent in the "Western Farm Stock Journal" was called upon to appraise the land of a farmer who wished to take a loan from the "Pennsylvania Home and Dower Association," and finding the terms so positively in favor of the Company, and so evidently against the farmer, that he felt it his duty to write to the "Journal." The editor of that excellent periodical very properly advises farmers not to deal with any such companies unless they find, after submitting the papers to some competent attorney, that there is no possible chance for fraud.—The foregoing, from an influential Western Journal, is gratifying evidence that we are not alone in our endeavors to save farmers from loss.

THE SOLARGRAPH WATCH! ONLY $1 00,

is advertised in certain country journals—who ought to know better, but don't—as "a Perfect Time-keeper," warranted "to denote time as accurately as a $100 Chronometer Watch"—and all the rest of it. This is a very old fraud that we published years and years ago. It is only a pocket sun dial, which, if it may approximate to the correct time when the sun shines, can not be of the least use in a cloudy day, or at night, when one wishes to know the time more frequently than in the day. Those papers which publish such trash have little regard for the interests of their readers... We have had a number of inquiries concerning

"THE CENTENNIAL ILLUMINATING OIL,"

the recipe and "right" for making which is sold by agents acting for a concern in Marshall, Mich. This oil they claim was "invented by the renowned chemist, Dr. S. G. Montague, of Paris," and they say "It is as far superior in every respect to kerosene oil as sunlight is superior to moonlight." The recipe which is sold by the agents is as follows: "RECIPE FOR MAKING ONE GALLON. Take seven-eighths gallon of benzine or crude petroleum; add to it one-half ounce gum camphor, one-half ounce of alcohol, one-half pint of common salt, one-half ounce oil of sassafras; stir and mix it well for about five minutes; let it stand for twenty-four hours, and it is ready for use. It is better to buy the benzine by the barrel from Pittsburg, Pa., as druggists usually charge two or three times the wholesale price." This recipe is

BOTH DANGEROUS AND NONSENSICAL.

Its basis is *Benzine*, which should never be kept in a house except with the greatest caution; to use it for burning is criminally wrong. The recipe says "benzine *or* crude petroleum." Why petroleum is mentioned, unless as a blind, we are unable to see. Benzine is generally obtainable at the drug and paint stores, while petroleum is not. It would make strange stuff to burn. It advises to get benzine from Pittsburg, but does not tell where to get petroleum. It is not easy to see what possible good half an ounce of alcohol will do in nearly a gallon of benzine—but the funny part is the salt! One recipe published a few years ago advised sliced raw potatoes with the claim that these removed the dangerous qualities of the benzine! Is the salt put in for that purpose? But this is a serious matter. We do not publish this recipe that our readers may use it, but that they may see

ITS DANGEROUS CHARACTER AND AVOID IT.

There are in most States laws against selling kerosene containing a small portion of benzine and other light oils. These, benzine, naphtha, and other oils, are produced in large quantities in refining petroleum to get the kerosene or oil that is safe for burning; being very cheap there is a temptation to add them to kerosene, and very stringent laws in most States prevent the sale of kerosene thus adulterated. In this recipe nearly the whole liquid is of this most dangerous substance. We advise every one to have nothing to do with any such compound. That it will burn and give a bright light we do not doubt, but

at what a risk! We do not suppose that any law can prevent one from using benzine if he chooses, and the only way in which people can be prevented from employing it for illuminating purposes is to warn them that

IT IS UNSAFE TO LIFE AND PROPERTY,

and rather than use it for illumination, people had better go back to the tallow dips and pine knots. The camphor, the alcohol, the salt, and the oil of sassafras, while they may disguise its real odor, in no essential particular change its nature. LET THIS CENTENNIAL OIL ALONE. ....Some of the Western States seem to be afflicted by gangs of quacks calling themselves

"MEDICAL INSTITUTES,"

which send out advertisements in advance, announcing that they will "open" at such a place, just like the various traveling shows. An Iowa friend sending a circular of such an "Institute," hailing from N. Y., asks us to forward his letter and the show-bill "to the President of the Institute," as he wishes to ascertain "if it is a genuine branch." The "branch" in this case is rather more "genuine" than the parent tree, as that apparently has an existence, else how could it "open at Sigourney?"—We have heard of one darkey claiming to be a funeral, and we do not know that there is any law to prevent a man or two men from claiming to be an "Institute," and an "International" one at that. We have known one man to be a "Medical University." With this view of the case we can not say that such an "Institute" does not exist. But the show-bill or circular, which gives the names of the President, and the Secretary, and the Physicians, even to the Apothecary, quite fails to tell us *whereabouts* in New York it is located. It says: "The International Medical Institute is no imaginary institution, located in some obscure building, but a wealthy company owning our own outfit complete."—It is a great comfort to know that it is not in an "obscure building," but it is rather tantalizing to learn that it has "an immense quantity of medicines, instruments, apparatus, charts, manikins, skeletons, etc.," and not be told *where* all these are. It isn't an "obscure building," as that wouldn't hold "an immense quantity of" "manikins, skeletons, etc.," which every one knows are highly necessary in the cure of diseases. We can assure our Iowa correspondent that among the many Associations, Corporations, "Institutes" or "'Stutions" in this City recognized by medical men, there is none bearing the name of "International;" moreover of the several names with M. D. attached, given as connected with the concern, not one is to be found in the latest "Medical Register;" nor is the name of the President, who does not have an M. D. attachment, in the general City Directory.

Missouri does not need to have a visit from New York invaders, she has a

"WESTERN SURGICAL INSTITUTE"

of her own, which is at Kansas City. It is a very pathetic circular that is sent from this Institute, begging every one who receives it to send—as per a tabulated form, the names of all the halt, lame, and blind of their acquaintance, because "He who directs the poor sufferer to relief is a true philanthropist"—To all of which we agree, and add, don't send the "poor sufferer" to the "Western Surgical Institute," as that is decidedly "on the make." And just here it is necessary to define our position for the 40th time, more or less. A long experience has taught us, that any one who advertises anything but the mere fact that he is a physician and surgeon, and is to be found at such or such a place, is

TO BE REGARDED WITH SUSPICION.

No physician worth employing or worthy of confidence, claims to have any method of treatment, or any special remedy not known to the rest of his profession. Whoever claims to possess either of these is a *quack*, and not to be trusted. It will be seen that this includes all special and secret remedies, as it is intended to do. No physician worthy of the name has any secret—no physician worthy of the name will agree to cure a case for a certain sum, nor for any sum at all. No physician worth trusting will treat a case by mail, or without first seeing the patient—after which advice may probably be given by mail. This meets a large class of inquiries about

MEDICAL MATTERS,

to which we are unable to reply separately. Whoever violates any of the rules above stated, is not worthy of confidence.

THE "SEVEN BARKS" MAN

is still sending out his circulars in the assumed plain language of the friends, calling himself, "Thine Truly, Lyman Brown." On the back of one of his "Thine Truly" circulars, he publishes this: "One of the most interesting plants in the whole range of the floral kingdom is the *Hydrangea Japonica*. It is found in the forests of Missouri, above St. Louis, and in various sections of the Middle States, etc." It goes on to say that its flowers are naturally pink, but that iron in the soil turns them to blue. We are informed that this plant was "first brought into prominence and regular use by Lyman Brown. The Extract of Hydrangea which he prepares is called 'Seven Barks,' from a familiar name of the plant itself." To all of which we have to say,

THERE IS NO PLANT

"in the forests of Missouri above" or below "St. Louis," or elsewhere in the "Middle States," or in any other part of America, growing wild, known to botanists by the name of *Hydrangea Japonica*, and that all the rest of the statements of the circular are as absurd as this... Quite as nonsensical as this Seven Barks statement is that of

THE INDIAN HERB BITTERS.

This is one of the things offered by the quacks who run the "Western Medical and Surgical Institute, Kansas City, Mo." The circular is illustrated by a very touching picture. A portly man holds up a bottle of the stuff and says: "Why don't you take the Indian Herb Bitters?" Poor man, not portly, leans on his cane and says: "I must or die"—all of which tends to show what a disgusting fraud this "Institute" must be. The circular says that "One of the physicians who is engaged in the manufacture of these bitters was a surgeon in the United States Army," and that during his residence among the Mohave, Piute, and Apache Indians, he became acquainted with "one who stood high as a medicine man," and that this stuff is made from the "native herbs of Arizona and New Mexico"—which he learned about from these Injuns. To all of which we say "bosh." The writer of this has lived among those very Indians, and knows what a miserable set they are, and that no regular army surgeon would belittle himself by allowing any such nonsense as this to be published....Among the

MOST PERNICIOUS QUACKS

are those who pretend to cure "Seminal weakness," and their methods are as bad as their practice. We have a letter addressed to an Ohio friend, without cause or provocation by one J. Lamb & Co., of this city. This letter encloses a so-called lecture by one Edgar Tremaine, and sets forth the efficacy of his medicines, and adds: "If you can send us the names of any friends to whom you have reason to think this lecture would be acceptable, please send them." The "Lecture," so called, is sensational, calculated to cause needless alarm. Its object is "One Dollar" for consultation, though prescriptions are given in the "lecture," they are *bosh*, and the true stuff is only to be had of Edgar's agents. Let Edgar Tremaine, his lectures, his prescriptions, and his agents severely alone. They are humbugs.

**Epizootic Amongst Horses.**—"G. A. B.," Saginaw, Mich. The disease known as "the epizootic" is a common one, but is rarely so general as to be justly entitled to that distinction. It is simply a catarrhal affection of the bronchial tubes, the lining of the air passages of the lungs, and the nasal sinuses, in fact what may be called a very bad cold, with some fever. It is treated by a saline purgative, as 8 to 12 oz. of Epsom salts, and afterward half an ounce of saltpeter daily, with warm drinks, general good nursing, and frequent rubbing of the limbs and body to excite the circulation.

**Diarrhœa in an Ox.**—"J. B. W.," Tolland, Conn. Diarrhœa is a symptom of indigestion, or of insufficient nutrition. If one or two quarts per day of cotton-seed meal is given with the hay for a week or ten days, the looseness will probably be stopped.

**Sheep in Michigan.**—"C. H.," Manistee, Mich. It is useless to try to keep any kind of long-wool sheep without rich pasture and a plenty of roots. Of the long-wools, the Cotswold can be reared most successfully, yet many have not succeeded satisfactorily with them, and have abandoned them for short-wools. Southdowns or Merinos will thrive where long-wool sheep would be half starved. The Oxforddown is a highly-bred sheep, and much esteemed in England, but our climate is so different from the English that imported sheep are apt to deteriorate.

**Foul Foot in a Cow.**—"J. W. G.," Pinewood, Iowa. Cows and oxen are subject to a disease of the feet similar to scratches in horses. Diseased granulations, similar in appearance to the heart of a cauliflower, break out and exercte a thin acrid matter. The treatment should be, to dress the diseased part with caustics, such as powdered Sulphate of Copper (Blue Vitriol) or Sulphate of Zinc (White Vitriol), rubbed up smoothly, with clean sweet lard, and give the animal repeated doses of one ounce Hyposulphite of Soda as an alterative. The Soda should be given every other day for a week or 10 days.

**London Purple—Insect Poison.**—In April last, we announced a new poison for insects, called London Purple. Paris Green is a compound of Arsenic and Copper, and must be prepared direct. London Purple is a compound of Arsenic and Lime, quite as poisonous as the other, but being an incidental product, formed in another manufacture, it can be afforded much cheaper. It is artificially colored of a deep purple, to guard against accidents in its use. It is in a state of very fine division, and it is claimed to be equally efficacious with the Green when used in one-fifth less quantity. Like that it is applied with water or diluted with flour, plaster, or other powder. Recently we have received from those who have used it for the Potato Bug, testimony as to its complete efficacy. It has also been found to effectively destroy the Canker-worm. A. R. Whitney, Nurseryman at Franklin Grove, Ill., writes that the Canker-worm took possession of an orchard of 25,000 apple-trees, besides attacking his nursery stock. The use of 12 ounces of London Purple in 44 gallons of water, applied by means of a force pump, destroyed the worms in short order.

**Space Between Boiler Tubes.**—"C. H. S.," Rosendale, Wis. The tubes of a boiler should not be closer together than three-quarters of an inch. Otherwise the water in the spaces would be changed to steam too suddenly, the tubes would become red-hot, and explosion become imminent. "Bourne's Catechism of the Steam Engine" is a trustworthy authority.

**Dog Laws—Dog Names.**—Connecticut has now a good "tramp" law to protect the people from wandering vagabonds. This was preceded by a good law passed last year, to protect the sheep as well as the people from vagabond dogs, of which we published the outlines last year (May, p. 178). Every dog kept in the State must be registered with the Town Clerk, before May 1st each year, with a payment of $2.15 for each male, and $6.15 for each female dog. Every such dog must *constantly* wear a collar distinctly marked with the register number and the owner's name. Every other dog must be killed by officers of the law, or any one else, and $1 is paid as a bounty for killing. Any person keeping an unregistered dog may be fined $7, or imprisoned 30 days, or both, and the same penalties apply for killing a properly *registered* dog unjustifiably. All damages done by dogs are paid for by the Town and collected of the owners by the Town. In the Middletown (Conn.) *Constitution* of June 10 we find the following list of names of 131 dogs registered up to that date, which shows the popular names for these animals, "Jack," "Dick," "Prince," "Jip," "Spot," "Major" and "Rover," being the highest favorites; four, in italics, are females:

| | | | | |
|---|---|---|---|---|
| Ben (2). | Dandy. | Jip (6). | Nig (2). | Sammy. |
| *Beauty.* | Don. | Jim. | Nip. | Shep. |
| Billy. | Doe. | Joe. | Prince (9). | Sport. |
| Bravo. | Doctor. | Judge. | *Peggie.* | Smoker. |
| Bruce. | Dosk. | Lion (3). | Pet. | *Sweep.* |
| Bront. | Dickey. | Leo. | Plum. | Tiger (3). |
| Brownie. | Duke. | Maek. | Punch. | Tasso. |
| Bruno. | Don Pedro. | Major (4). | Quiz. | Tip. |
| Carl. | Fido. | Mike. | Rover (6). | Tiney. |
| Carlo. | Franco. | Nero (3). | Rake. | Toby. |
| Charlie. | Feltman. | Nick (2). | Ring. | Tom. |
| *Clio.* | Guess. | Nailer. | Rome. | Toots. |
| Curly. | Gyp. | Nebo. | Spot (7). | Turk. |
| Dick (9). | Hector. | Ned. | Skip (2). | Watch (3). |
| Dan (3). | Jack (11). | | | |

**Plant Lice.**—There seem to be but few plants exempt from the attacks of Aphides or Plant Lice. These, when green, are known by the general name of "Green Flies," but those that attack fruit trees are usually black. "R. M. D.," of Greensboro, N. C., sends us the young growth of grape-vine completely loaded with these minute pests, which, sucking away at the young stem and leaves in such numbers, soon check all growth. We suggested the application of tobacco, which is generally effective. Among the Aphides were several larvæ of some kind, which Mr. D. thought fed upon the lice. He is no doubt right, though they do not appear to be the larvæ of the Lady-bugs, generally so useful in destroying the Aphides and other animal pests.

**Rings and Hog Cholera.**—"F. H." is informed by one who had travelled in Illinois, that the hogs there without rings were not attacked by hog cholera. This person did not ring his swine, as the use of these "nose jewels" by preventing their natural tendency to root, made them more subject to disease. Our correspondent properly adds: "If there is anything in this, it ought to be generally known." If others have any experience on this point, we shall be glad to have it.

**Seedling Arbor Vitæs.**—"J. N.," Ironton, Mo. It is well to leave the plants in the seed-bed for two years. It will not be necessary to shade the plants if carefully transplanted, which should be done in the spring.

**"Impressions."**—"C." Your inquiry is not sufficiently explicit. We cannot tell you "what preparation to use," unless we know what you would take impressions of, and all about it. You are evidently a new subscriber, or you would be aware that we always expect the full address. Had you given yours, we should have written you. As it is, we are obliged to take space that should be used for other purposes, to make the inquiry. We should not do this did we not wish to impress the fact that the full address should *always* be given, and to show the trouble that is caused by the omission.

**Horse Rakes.**—Nothing has done more to relieve the labor of the hay-field than these. Most of us can recollect the excitement produced, by the introduction of the old horse rake with wooden teeth, which revolved and dropped its load. It seemed then as if we had the perfection of a hay rake, and the following on foot by the driver, was not thought a hardship. But instead of the old wooden-rake, with clumsy teeth like fence pickets, we have long, elastic teeth of steel, and the one who rakes, does not plod along on foot, but rides. Among others of the steel rakes that have become popular, those madeby the Wheeler & Melick Co., Albany, N. Y., have a high reputation. The awards at the Centennial and Vienna Exhibitions, are sustained by farmers all over the country, who find them easy and effective in working, simple in construction, and durable in use.

**The Whitman Fountain Pump.**—An acquaintance with this pump from the start, and its use for several years, enable us to say that in the present improved condition, it combines in a remarkable degree simplicity and effectiveness. Scarcely larger than a good sized walking stick, it discharges a stream of remarkable volume with force, and may be used wherever a garden syringe or a portable pump is required, whether in the greenhouse or the open ground. Now that it is found possible to destroy the Canker-worm in the caterpillar state by the use of Paris Green, or London Purple—formerly all efforts were confined to placing barriers to its ascending the trunks—this Pump will be found very serviceable in distributing the poison on the trees. Aside from horticultural uses there are various others in which it will be found very handy, especially in washing windows and carriages. In every country house there should be means at hand for throwing a stream of water in case of fire. At the first outbreak of a fire, it requires but very little water to extinguish it, provided it can be put in the right place. The Fountain Pump will be found most useful as a fire extinguisher, and if always kept where it may be found without searching for it, may be the means of preventing a serious conflagration.

**Mixing of Wheat.**—"A. H.," Neb., asks: "If wheat sown side by side will not mix, how do persons originate a new kind?"—The flowers of the wheat are closely surrounded by the *palets* or chaff, and it is claimed that the ovary is fertilized by the pollen of its own flower, before the chaff opens, and liberates the stamens. Those who "originate new varieties" by crossing, are obliged to carefully open the chaff before natural fertilization takes place, and apply the foreign pollen.

**The Coffee Tree.**—"W. A.," Union Grove, Wis. The Coffee Tree only succeeds in localities where the average temperature is from 64° to 70°. In tropical countries it only succeeds where the mountain elevation allows of the proper temperature. There have been very contradictory stories as to its success in California. At first it was stated that the coffee plant was found growing wild there, but it was found that this was only a species of Buckthorn, and not at all related to the true Coffee. Perhaps our friends of the "Southern California Horticulturist" will tell us what success has attended the experiments with the Coffee plant in their most genial climate.

**Dried Persimmons.**—Not the "'Simmons" of which the Southerners make their "'Simmon beer," but the true Japanese Persimmons, several times larger than our native fruit, and as much better as they are bigger, have been sent us by Mr. Chas. H. Shinn, of Niles, California. The Japanese Persimmons are of various sizes and shapes, when fresh, and present a similar variety when dried. In taste they are much like figs, and if offered in the market would no doubt meet with a ready sale. Mr. S. does not state, in sending us the specimens, whether they are from fruit grown in California, or are imported from Japan in the dried state.

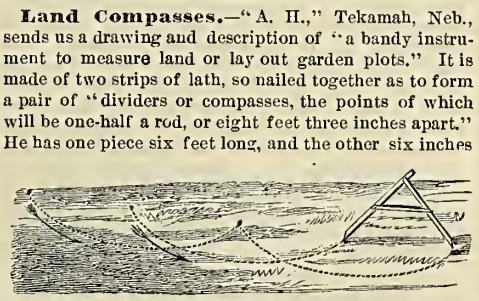
**Treatment of Amaryllis.**—"Mrs. E. S.," Oregon. The species of Amaryllis are so numerous, that no one can with propriety be called "*the* Amaryllis,"—yet they all require essentially the same treatment. To succeed with them, attention must be given to secure a good leaf-growth after they have flowered. Upon this will depend the next season's blooming, hence, after the flowers fade, the plants should not be neglected, but let them be watered regularly, and have a light position until the leaves begin to fade, when they may be gradually dried off, and the pots, containing the bulbs, kept in a cool dry place to rest, until the time to start into growth again.

**Jersey Red Pigs.**—"J. H. P.," Yakima Co., W. T. The Jersey Red pigs grow rapidly to an enormous size, but the flesh is nearly all fat. Where this is not an objection, this is perhaps the best breed for one who desires to procure heavy pigs at an early age.

**Weeds—Snap Dragon.**—"X. Y. Z.," Long Island. We presume that your "Snap Dragon" is the Toad-Flax, Butter and Eggs, or Ramsted-weed of Pennsylvania. Your neighbors method of sinking a board frame a foot below the surface, and covering the top with cement, as you say, will not answer for a field. Your letter is more satisfactory than many we receive, as you do not suppose that there is any application that will kill a weed and not hurt other plants. All plants, useful and injurious, have the same laws of growth. Some are more tenacious of life than others, and some are especially well provided with means of multiplication. However well a plant may be established, and the ground is filled with roots and root-stocks, stored with nutriment, each inch of which will make a new plant, every attempt this plant makes to grow will exhaust a part of this under-ground store. It can not increase this stock without leaves. If kept from producing foliage, this accumulated store *must* in time be exhausted. It can not last forever, it can not add to it unless it has leaves to make it. These are fixed facts. Keep down the leaf-growth and the plant must die. It is only a question which will hold out the longest, man or plant. There are few who will give the needed thorough work; if the plant does not yield to a few hoeings or cuttings, the task is given up. There is perhaps no worse weed in existence than the so-called Horse-Nettle, *Solanum Carolinense*, which is actually, in parts of Delaware and Maryland, driving people from their farms. It is said, and generally accepted, that the plant can not be killed. A friend in Delaware, a good botanist, who held the view of plant growth expressed above, determined to put his philosophy into practice. He tried the Horse-Nettle; as soon as a shoot appeared, off it came; he admits it was a hard struggle, and that to clear it out would cost all that the land was worth—but *it can be done.* If "X. Y. Z." has the courage and determination of our Delaware friend, he can get rid of his pest. Turn the field into a fallow, to be gone over just as often as there is anything to cut, even if it must be daily. Only thorough work will conquer—and that *will.*

**Charcoal for Pot Plants.**—"Mrs. E. S.," Oregon. Charcoal in itself has no fertilizing properties, though it may absorb fertilizing matters, and thus be useful. In pots its main effect is a mechanical one, to keep the soil open and prevent it from becoming packed and hence impervious to water and to the slender root fibers.

**Land Compasses.**—"A. H.," Tekamah, Neb., sends us a drawing and description of "a handy instrument to measure land or lay out garden plots." It is made of two strips of lath, so nailed together as to form a pair of "dividers or compasses, the points of which will be one-half a rod, or eight feet three inches apart." He has one piece six feet long, and the other six inches longer, to form a handle. It is made of strips an inch by an inch and a half, with a cross-piece as shown in the engraving. It will be seen from the illustration that this simple implement affords a ready method of measuring small plots, and may be made very useful in laying out beds, etc. We used a similar affair some years ago, but made in a more permanent manner, and so arranged that the points, by means of a screw, could be placed at any desired distance apart, and found it a great convenience.



**Water for Fattening Hogs.**—"W. L. S.," Jerseyville, Ill. When hogs are put up to fatten, and fed on dry corn, it is the practice to give them but little water; but they require some. It would not be possible for a hog "to live for weeks," without water or other drink, when feeding on dry corn, although when fed on new "soft" corn, a very small quantity of water will be sufficient, and possibly if the corn is very soft and unripe, water might not be indispensable.

**Cribbing.**—"W. H. G.," Center Co., Pa. Cribbing is a vice which springs from habit more than from any other cause. It begins frequently from a desire to ease the teeth from inconvenience or perhaps pain, at that period when the dentition is perfecting, and then becomes fixed upon the horse as a vice. It is not injurious except when accompanied with "wind-sucking." which is a series of deep inspirations by which flatulence and belly-ache are caused. When the habit is fixed on a horse it is difficult to break it, and the only effective method is to use a muzzle which prevents him from thus using his teeth.

**Peaches from Georgia.**—Some friend sends us a copy of the Macon, (Ga.) "Telegraph," which informs us that on May 20, the first peaches were sent to New York by R. H. Rumph, of "Willow Lake Nursery," near Marshallville. The varieties were "Alexander," "Amsden," and "Beatrice." The same paper states that on Mr. Rumph's place, "apples ripen every month in the year," and that he accompanied the shipment of peaches by one of apples. Is there no mistake about the statement that apples ripen at Macon "every month in the year?"

**Mange in a Pig.**—"O. J. C.," Schodack, N. Y. Mange can be cured by applications of whale-oil and sulphur, well rubbed into the affected parts with a corn-cob; the skin being thickened needs something rough to break up the dry flakes with which it is covered. Give ½ oz. of sulphur in the food daily for a week or 10 days.

**Filter for a Cistern.**—"J. L. C.," Rock Co., Wis. The best filter for a cistern, is made of a box of brick work, with the end joints of the brick left open for two courses at the bottom. This part is filled with coarse washed gravel; a layer of sand is placed upon that, and a layer of fine broken charcoal upon the sand. Then sand and coarse gravel are placed upon the charcoal, and the leader pipe is cemented into the top of the box. The box should be at least 2 feet square inside, which will give a capacity for filtering the water, as fast as it is led into it.

**Express Charges on Stock.**—Many persons are deterred from purchasing improved stock by the enormity of the charges for carrying animals by express. Even for a short distance the cost of freight is often equal to the value of the animal, and when one is sent from the Atlantic to the Pacific Coast, the charges sometimes run up to ten times the first cost. The business would be very much increased if the charges were moderated, and an Express Company that would foster and encourage it would doubtless find it greatly to its profit.

**Shipment of Cattle.**—Purchasers of cattle should be informed that while the present embargo on account of the cattle disease continues, animals can not be shipped into New York or New Jersey, or be permitted to pass through those States without a permit from the State Inspectors. For permission to move stock in N. Y., application should be made to General Patrick, 301 Mott St., N. Y., and in N. J. to Colonel Sterling, 249 Washington St., Jersey City.

**The "California Horticulturist"** had for a long time been very little Californian, and not very horticultural, and was the poorest possible apology for a journal bearing its name. Recently it has taken a new lease of life. Chas. H. Shinn, Esq., a well known nurseryman of Niles, Cal., has become its Editor, and within a short time has made it not only horticultural, but distinctly Californian. From being an indifferent magazine, it has now become one, the advent of which gives us pleasure, as we feel sure that we shall learn what is going on in California, and not be treated to extracts from English journals, which we had read in the original weeks before. Mr. Shinn has shown that he can do good work, and we wish him success. California has such a peculiar climate, that it must have a horticultural journal of its own. A monthly that contents itself with telling what is done in England and France is of little value. Home articles, giving home experience, are now to be found in its pages, and if Mr. Shinn only continues in his present course, his success must be certain.

**Sugar in Amber Cane.**—Prof. Goessmann finds that grape sugar appears in the cane while it is quite young, and increases to 3 to 4 per cent before any cane sugar is formed, which is first found when the flower stalks are pushing out of the leaves, and increases in amount until the grain is of full size. The per cent of the grape sugar to the cane sugar was, in most cases, as three to seven. After cutting, the cane sugar changes gradually into grape sugar, the change being hastened by moist and warm weather. For the best results in sugar and syrup, cut the crop as soon as the grain is full grown, but not ripe, and grind the stalks at once.

**Killing Insects by Manuring the Soil.**—Some queer notions are held about insects. A person who has a "Mineral Manure" for sale called on us a few days ago, and among other claims for his fertilizer said that its application to the soil would prevent the Codling-Moth from laying its eggs in the apples. This man was

evidently honest and sincere in his statement, and went off somewhat offended that we did not admit his claims. He left with us a circular setting forth the virtues of his "Improved Mineral Manure," which is about the funniest thing we have seen of late. He says of his "manure" that it is "A perfect renovator and purifier of soil, * * * cleansing soils from cut worms, Peach, Apple, Cabbage, Potato worms, and tree borers, creating new energy in earth, air, water, animal, vegetable, and yard manures. Generating a new distillation of tree, fruit, plant, grass, vegetable food."—Was there ever such a farrago of nonsense! But there is more of it. We are informed by this circular some astounding facts: "There is mineral in our blood, in all plants, trees, fruits, grains, grass, vegetable, wool, cotton, milk, beef, pork, butter." More yet, "Mineral aids soils, animal and vegetable manures to generate food for plants, and cleanses soils from worms and insects." Just what high old "mineral" it is that does all these we are not told. But all this nonsense has the one thing needed to complete it. The author quotes the "Farmers' Club, American Institute," as indorsing his ridiculous claims. It is just such stuff as the Farmers' Club would indorse—and no other body on the face of the earth would or could. The man is evidently honest, according to his knowledge, and the Club indorses, according to *its* knowledge.

(*Basket Items continued on page* 279.)

## Bee Notes for July.

BY L. C. ROOT, MOHAWK, N. Y.

In sections where the Basswood or Linden tree abounds, the choicest honey will be gathered this month. In Central New York it usually blossoms about the 15th of the month. I have known some very strong stocks to gather as much as 24 lbs. in a single day when Basswood was at its best. Of course, such results are attained only under the most favorable circumstances. I speak of the abundant yield of this honey to indicate the desirability of observing all the necessary requirements for securing it. I think that in quality, Basswood honey is not surpassed by that from any other source. It is very light in color, and its peculiarly minty flavor is very superior. Yet in many sections, White Clover and Raspberry yield honey in profusion, and of fine color and quality. These blossom a little before Basswood. Where Basswood trees are abundant, full sets of boxes may usually be filled. Boxes should be removed promptly as fast as filled. Where a yield from other sources does not follow that from Basswood, do not add empty boxes too late in the season, as they will be but partly filled.

When surplus honey is taken with the Honey Extractor, instead of in boxes, I would advise extracting all the early gathered honey from the hives at the time that the yield of fine, white honey commences, so that this quality may be secured by itself. The ability to keep each quality of honey by itself is one of the especial advantages of the Extractor. The benefits to be derived from

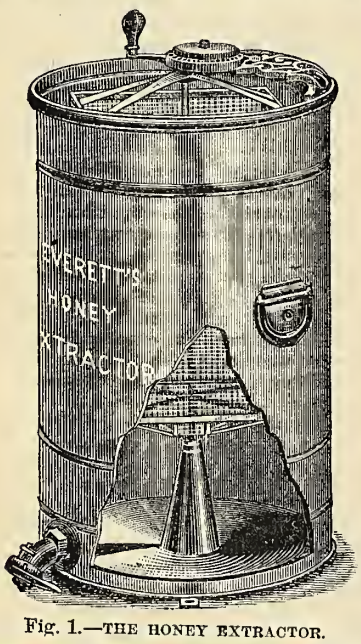



Fig. 1.—THE HONEY EXTRACTOR.

an intelligent use of the Extractor, should command the attention of all enterprising bee-keepers. I am of the opinion that there would be a more general adoption of this method of securing honey were it not that the operation is thought to be very difficult. But with ample experience I may confidently assert that it may be more satisfactorily practised than the process of boxing. To make the operation clearer, I give (fig. 1) an engraving of the Extractor. Within the can is a reel with four sides, covered with coarse wire-cloth. The combs to be extracted are placed against the wire-cloth on the inside, and the reel revolved by means of a suitable gearing. When the reel revolves with sufficient rapidity, the honey is, by centrifugal force, thrown out of the cells against the sides of the can. The reel removed from the can is shown at *a* in figure 2. At *b* is a comb-basket to hold small pieces of comb, from which it is desired to remove the honey; this is placed in the reel just as a whole frame. If the honey in the combs is sealed the capping is first removed by means of a knife for the purpose, shown in figure 3. The hive containing combs to be extracted should be removed to the rear of its stand, and its place supplied with an empty one. Take out the combs and shake or brush the bees from them in front of the empty hive. A little practice is necessary to determine the speed requisite to throw out the honey, and not dislodge the brood in such combs as contain portions of it. After the honey is thrown from one side of the comb, reverse it, and empty the other side. The combs may then be replaced in the hive, and the bees returned to them. One of the marked advantages of this process is, in the fact that the bees are saved the labor and expense of being required to build the combs in which to store their honey, as they are obliged to do in boxes. Honey may be thrown out by the use of the Extractor any number of times without harming the combs.

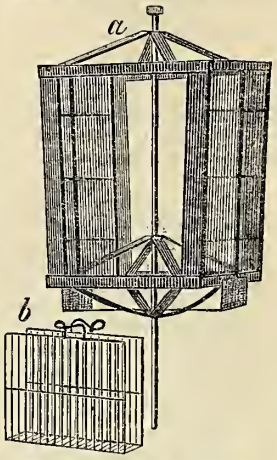



Fig. 2.—REEL AND COMB BASKET.

Fig. 3.—HONEY KNIFE.

## Concerning a Few Common Plants.

BY PROF. ASA GRAY.

This is the title of a couple of primers (6 x 4 inches), of 30 pages apiece, written by Prof. Goodale, for the use of teachers, and issued by the Boston Natural History Society. The edition sold out at once, and a new edition is ordered. The thing came to pass in this wise: 1. The Boston School Committee ordered that all schoolteachers in the Public Schools should give an *object lesson*, once a week or once a month, to their scholars—should teach them how to observe and look into plants and stones, fish, flesh, and fowl. 2. Now, taking the teachers as they run, it was found that only about one in a hundred knew anything about objects—knew what an object was when they saw it, or knew what to do with it when they happened to know what it was. They knew how to hear lessons out of a book; but here the rule was that no book whatever was to be used. 3. So some good people—mostly ladies (if that does not go without saying)—got up a course of teaching for the teachers, at the Boston Natural History Society, and got such men as Mr. Scudder, and Prof. Hyatt, and Prof. Goodale—men who know what *objects* are, and what to do with them—to play the part of teacher, while the teachers played the part of children learning how to see things, and were shown how the mind of a child or a larger boy or girl was to be brought to bear on common objects—not to be told very much about them, but made to see for themselves, and to take a real part in finding out for themselves all about the growth and structure of a plant or animal, or the formation and qualities of a stone, the making of snow and ice, and the like.—These object-lectures being free, the teachers came by hundreds; and the wise afterthought of demanding a small entrance fee for the course, so that it need not be swamped by over-crowding, did not prevent the filling of a large lecture-room.

The first lesson was given by Prof. Hyatt, and was about Pebbles. Several were given by Prof. Goodale, and they were about Common Plants.

The first rule of the course was: No talking about the absent. Everything taught was seen and handled—not merely seen on the lecture-table, and a specimen or two passed round, to be inspected for an instant when the lecturer was talking about something else; but every one of four or five hundred teacher-learners had a tray given him or her, containing every object that came into the discourse. Beans and peas were the first dishes of the course, and these were served round bountifully. When the rule is to "proceed from the known to the unknown," with what so well as beans could a Down-East lecturer begin the botanical education of an audience "to the manner born?" So every partaker was served with two or three beans, *au naturel*, as they say in France (and they were what they call in England, French beans), that is, dry and in their skins, also with a soaked one ready to be slipped out of its skin, another just beginning to start in germination, another fairly started, and one that had set the first pair of green leaves, and perhaps the third leaf, of three leaflets. What's the difference here, and how has it come to pass? The teacher has to ask a few questions to guide the observation and enquiries of the pupils; and the pupils must answer, or be led to answer the questions for themselves, *by an examination of the objects.* Then comes the pea, served up in the same style and variety. Then, step by step, and part by part, the pea is compared with the bean, the differences as well as the likeness noted, and the reasons why, are got out of the objects and out of the processes in a good degree by the exercise of the pupil's own mind. And so this goes on, until a fair amount of really good elementary knowledge is *fed* to (not poured into) the pupils' minds in such a way that they can assimilate it, as the seedlings assimilate water and air, and make it their own.—Now, these primers showing how it is done, contain an abstract of the instruction. They are not intended for the pupils, but for the teachers who heard the lectures—and for teachers all over the country, who would have heard them if they could. We will try to give the young readers of the *American Agriculturist* some specimens of these primers.

## The Plum Curculio.

"L. W. S.," Swanton, Vt., writes: "Please inform us what the Curculio is, or how it looks, and in what manner it destroys the plum, etc." Several years ago we gave a very full account of this troublesome insect, and illustrated it. One of the difficulties with a journal like ours is, that new readers are constantly added to the list, to whom matters that we have already thoroughly discussed are quite new, and we have frequent requests to treat subjects that have already been given in full. In some cases we advise the inquirer to procure a back number which contains an account of the subject of his question; in other cases, as in the present, where a number have asked about the Curculio, we reproduce an engraving with a brief account. The engraving was drawn for us from life, in 1864, and is one of the best representations of the Curculio we have seen. The insect is shown of its real size and much enlarged. It is of a dark, blackish gray, with lighter markings. It comes out of its hiding place in the ground or elsewhere in early spring, and is around until July or later; it flies or climbs up the trees, and so soon as the fruit is set, begins to lay its eggs. It makes, with its proboscis, a crescent-shaped cut, in which it lays an egg. The larva, hatching from this, feeds upon the fruit, and in time the fruit drops to the ground, and the full grown larva leaves the fruit and enters the ground to complete its changes. When

THE PLUM CURCULIO (*Natural size and enlarged*).

alarmed the insect curls up its legs and feigns death. This affords the best, and only practicable method of destroying it, sheets or other cloths are spread upon the ground or held under the tree, while the body of the tree is given a sudden jar or thump; the insects fall, and are gathered and killed. No applications to drive away the Curculio have been found to be of any value. If the ground is kept clean and smooth around the trees, and shingles, pieces of board, etc., are laid here and there, some of the insects will hide under these and, if they are examined daily, many may be caught; this is only useful as an accessory to the thumping method.

## Mr. Lawes' Letter on Nitrogen.

The Report of the N. J. State Board of Agriculture for 1878, coutains, within convenient space, a large amount of useful material. Mr. Chas. V. Mapes contributes an article ou fertilizers in the past and present, which supplies a variety of suggestions and subjeets of thought. One of these topies has ealled out an interesting letter from Mr. J. B. Lawes, of Rothamsted, the veteran English Experimenter, whieh we have the pleasure of presenting to our readers, on page 262. Of all the many problems which agricultural chemistry is now investigating, perhaps no other one is more important to the future welfare of our farming than that of the *nitrogen* supply. This is the costliest ingredient of our fertilizers. We are paying, and usually with profit, from 15 to 30 cents per pound for it in our standard fertilizers, such as guano, fish, ammoniated superphosphates, nitrate of soda, and other special crop fertilizers. And yet the very soils on which nitrogen is used with profit, often contain thousands of pounds in every aere within reach of the roots of plants, but in inert forms so that crops cau not use it, and fail for lack of it. A great deal of the nitrogen applied in fertilizers runs to waste in oue way or another before the crop gets it, or lies dormant in the soil. Heuce the questiou how to apply nitrogen so as to make the most of it is, as Mr. Lawes says, a most important one.

For more than thirty years Mr. Lawes has been devoting a considerable portion of his farm, and large sums of money, often as much as $15,000 in a single year, to experiments. He has raised grass, wheat, barley, clover, roots, and other crops with different fertilizers—in some cases using the same fertilizers for the same crop ou the same plots, year after year. Some of the results of these experiments continued through nearly one-third of a ceutury he details to us here. The particular question is: What becomes of the nitrogen applied in the manure? Where he has used duug at the rate of 14 tons per acre every year for barley, the crop has had at its disposal, more than four times as much nitrogen as it used. Where has the rest gone? There are several ways to account for it. Much stays and accumulates in the ground. Grass land manured in this way for eight years in succession, had stored up enough nitrogen and other ingredients of plant food to keep up the full yield for five years longer, and now, after fifteen years eropping since any manure has been applied, the effeet of the old supply still remains. On another field where 14 tons of dung were applied every year to barley, analysis implies that the nitrogen accumulated in the soil at the rate of about 100 lbs. per acre annually.

But with artificial manures the case is somewhat different. Nitrogen in Sulphate of Ammonia, and in Nitrate of Soda, is all ready to act at once. One-fourth as much as is found in the dung supplied, brings as good crops. But the nitrogen in these chemical fertilizers does not accumulate in the soil like that in dung. Part is recovered in the erop, and the rest is lost, though some doubtless enters into inert combinations in the soil. Much is leached away by drainage waters. Some probably escapes in the free state into the air, though Mr. Lawes does not dwell upon this source of loss in his letter. The nitrogen in dung is subject to loss in the same ways, but does not waste so fast.

One lesson from all this is, that dung acts slowly and lasts a great while, but artificial fertilizers generally bring quieker returns and are sooner spent. Each is profitable in its place. Another lesson is that the farmer ought to do his best to economize the materials he has on hand in his soil. If he can help his crops to utilize the inert nitrogen within reach of the roots, that will be better than to buy it at high cost in eommercial fertilizers, or apply large quantities of dung, to store away more. Choiee of the right crops, such as clover, and probably to some extent corn, use of lime and ashes, and proper tillage, are the means for this ecouomizing of the nitrogen in the soil.

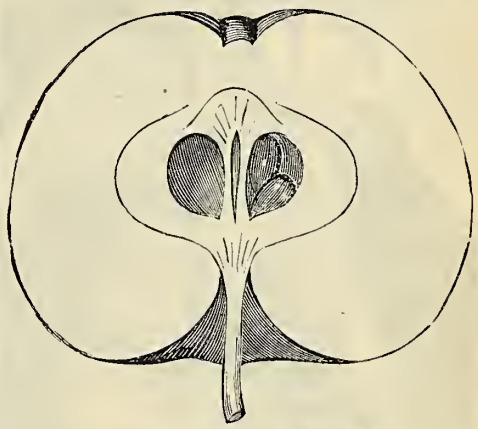
**Markets.**—It may be worth while for those farmers who live near towns and villages, to study their local markets. Although nearly every villager, or dweller in a eountry town, has a garden, yet, as a rule, such places are poorly supplied with fresh vegetables. A large quantity of early lettuce, asparagus, peas, beans, sweet eorn, cabbages, melons, potatoes, and many others could be sold if they were only offered. It is frequently the ease, that one does not know that he needs a certain thing until it is offered to him, and the great consumption of fruits, vegetables and preserved meats, has been encouraged by the production and offering of them foi sale, by enterprising people. A case in point may be given. The writer sowed cabbage seed, for plants to be set out on an acre of grouud. As soon as it became known that cabbage plants could be proeured, fresh from the seed bed, there were more applications for them than eould be supplied, and the proceeds from the sale of surplus plants, to the neighbors more than paid for the cost of the bed.

## Cactus—Cacti—Cactuses.

Of late, we have had several inquiries about plants popularly knowu by the above names. More generally we are asked about *the* Cactus as if there was but one. In fact there is no such genus knowu to botanists as *Cactus*. The old genus *Cactus* has been subdivided and given other names, and while we have the Cactus Family, we have no proper *Cactus*. It is very proper then to call them all Cacti or Cactuses, meaning that they belong to a speeial family. Some 25 or 30 years ago, Cactuses were much more generally cultivated as house-plants than at present. We can only account for the deeliue in their popularity by the fact that the most showy of them are not winter bloomers. But there are no plants that require less care, or more abundantly repay the little they require in gorgeous flowers than these. The genera in most common cultivation as house plants are *Epiphyllum*, *Phyllocactus*, and *Cereus;* though others are attractive, they are generally confined to greenhouse culture. They all nced a good, moderately rich, and open soil, water when growing and flowering, and a period of rest, during which time they may be kept nearly dry. The *Epiphyllums*, generally known as "Crab's-claw" Cactuses, from their peculiar jointed stems, bloom in autumn and early wiuter. They are low, drooping plauts, and are often grafted ou some other member of the family to give them a stalk six inches or a foot high, from the top of which they hang over gracefully. Still they will do very well on their own roots, and form handsome specimens, nearly concealing the pot. These nced to be kept nearly dry all summer, and in autumn given water gradually; they come into flower from November to Christmas. No plants are more manageable, and they may be grown in pots or wire baskets, or in whatever will hold a little soil. After flowering, they make their growth, aud when this is ripened, they should have a rest, with little water. *Epiphyllum truncatum* and *E. Russellianum* are the most common, but florists offer others. The plants best known in window culture as Cactus are either species of *Phyllocactus* or of *Cereus*. The *Phyllocacti* have flattened, leaf-like stems, whieh have no spines, and are often round below; the *Cereuses* have three-angled stems, or cylindrical ones with lengthwise angles or grooves, and usually with tufts of prickles or bristles; in both, the flowers appear from notches in the edges or sides of the stems. *Phyllocactus Ackermanni* and *Cereus speciosissimus* are the most eommon, and with their immense flowers, 5 or 6 inches across, of the most brilliant scarlet and erimson, are well worth the little trouble they require. They flower from May until August, and make fine ornaments for the veranda. When brought in early in autumn, if growth has eeased, they need very little or no watcr until February or later. Numerous other species and varieties can be had of the florists. One lady correspondent, writing from New Jersey, says: "I am learning to love the Cactus (she, like most others, writes as if there were but one). It is like a person with a very amiable disposition. Neglect it, abuse it, and it will continue to grow, and even flourish, showing constancy in adversity, and forgiveness for ill-treatment."

## A New Apple—The Highland Beauty.

We hold that it would be a great advance if nine-tenths of the apples now named could be stricken out of existence; but we must take the world, apples included, as we find it, and if we have now and then added a new apple to the list, our sins in this direetion are not many. We know, and tell our readers, that 100 names will cover all the apples that it is at all desirable to have in any given locality; 50 would make a better list, and if for any one place one's selection exeeeds 20, it is probably too large. With these views, our readers may wonder at our adding a new name to the list, and assume that a uewcomer must possess extraordinary merit to induee us to give it a plaee. They will be perfectly right. This new apple, the "Highland Beauty," eompetes with but just one apple in the immense list. Every one knows the Lady Apple; its small size and great beauty—the darkest of red on the brightest yellow—its brilliant polish, make it noticeable; and its beauty is more than "skin deep," as it has a clear white, fine-grained flesh that is pleasant to the taste. It is a profitable apple, as it brings the highest price of all apples, and is especially in demand at the holidays for making up ornamental dishes and baskets of fruits. The tree, though productive, is not very hardy, and the fruit appears to have lost much of its former beauty. Last fall we had oceasion to hunt up



APPLE, "HIGHLAND BEAUTY."

a barrel of these apples, and were told by one of the largest commission merchants that not even a moderately good barrel of "Ladies" had come to market that season. Those that we found were more or less defaced by insect attacks, and scarcely a perfeetly fair specimeu could be found, while dark fungus spots blotched the surfaee and quite destroyed its beauty. If the Lady is to behave in this way, we must have some oue to take her place. Will Highland Beauty do it? It seems to us to promise strongly in this direction. It is rather larger than the Lady (the engraving is larger than the average) and almost as beautiful—perhaps some would say quite so—but its beauty is of a different kind. If we regard the Lady as a *brunette*, the Highlaud Beauty may be described as a *blonde*. Its oblate form is shown by the engraving; its stout stem is in a very deep eavity, and its open calyx is set in a deep, furrowed, and even plaited basin; the skin is of a very clear pale yellow, with an abundant light carmine blush covering about half of the surface; the flesh pure white, very fine, and tender, moderately juicy, of a pleasant delicate flavor, with so little acidity as to almost class it among sweet apples. We first saw the fruit in September last, and were struck with its great beauty; we tried it during the Winter, and in March specimens that had received no special eare attested its keeping qualities. Except for its larger size, this may, if not supersede the Lady, form a most useful companion to it, and we have no doubt will prove profitable for the same reasons. The Highland Beauty was brought to our notice by Mr. E. P. Roe, who found it as a seedling in that old garden at Newburgh which has furnished him such excellent seedling gooseberries and raspberries, and beyond this nothing is known of its origin.

## The Peach Curl Fungus.

The prevalent and injurious deformity of the peach leaves known as "the curl," has been ascribed to aphides or plant lice, but it is now known to be caused by a minute fungus, known to science as *Taphrina deformans*, for which "Peach-Curl fungus" will serve as a popular name. This parasitic plant makes its appearance in early spring, so soon as the leaves begin to unfold, and causes them to roll and twist until they would scarcely be recognized as leaves. The fungus grows *within* the tissue or substance of the leaf; the affected portions lose the normal green color and soon become spongy, and are frequently variegated with red and otherwise highly colored. Often the young stems become enlarged and of a sickly whiteness. All affected parts soon wither, turn brown, and die.

Without going into the microscopic structure of the fungus, we will say that it is a not distant relative of the Black Knot, and should be treated in the same way. Remove all the affected parts as soon as the fungus appears. To pick off the leaves is not enough; the young branches should be cut away, as they will otherwise produce diseased leaves and serve to propagate the fungus. The work of removing the "curl" is not a difficult one, as it

PEACH-LEAVES AFFECTED BY THE "CURL."

can be easily seen, and is reached in most cases from the ground. The portions cut off should be burned, to prevent the spread of the trouble. The specimen selected for engraving was not as much deformed and contorted as many we have seen; but it serves the purpose better on that account, as the leaves are seen to be those of a peach tree.

## Value of American Pork in England.

While much is now said about the shipment of provisions to Europe, the business is by no means a new one. America has been an exporter of provisions for many years, and Great Britain has been the principal purchaser. Twenty-five years ago, the writer, then traveling in England, saw American pork in barrels on sale at retail stores marked 3 pence sterling, or 5 cents per pound. American corned beef and flour were then sold at 7 or 8 cts. for the former and 16 shillings, or $4 per barrel, for the latter. After the lapse of a quarter of a century, we find our pork again landed in Liverpool at a trifle less than 5 cents per pound, and our flour sells for but little more than the old price. But these low prices now return a much more liberal payment to the farmer than previously. The reduction in freight, during the past few years, is enormous. For instance, long and short pork ribs are quoted just now in Chicago at $4.50 per 100 lbs., which, considering the present price of corn is fairly good. Freight from Chicago to Liverpool is now only 34 cents per 100 lbs., or less than 8 cents for the dollar of value, so that the meat is laid down at Liverpool for less than $5 per 100 lbs. This matter of freight may be considered instructively; 100 lbs. of pork represents 600 lbs. of corn; the freight on the corn would be equal to $2, and the corn sells now in England for $5.60 for the 600 lbs., leaving $3.60 for the corn in its raw condition, and $4.50 for the finished product, the pork. This shows the advantage of shipping finished products instead of the raw material; and of sending those abroad and feeding all the corn possible at home. This helps, too, in another way, because every bushel of corn reserved from export enhances the value of the remainder, while, with the present increasing demand for meats, there is no probability of materially lower prices, even with a greatly increased production.

## A Ladies' Garden Club—An Example.

A correspondent well known in horticultural and botanical circles, thus writes to the editor:—The ladies of our street have got up a *Garden Club!* I live, as you know, in a suburban village, in which rarely anything happens to write to you about; for not much is done hereabouts in the agricultural way. But here is something to make a note of. This Club is made up of ladies only, and is confined to those of our street, to the women of only a dozen and a half of families, who live in houses with door-yards and a bit of garden. They have got a President—the most experienced plant-grower of the lot—and a Secretary, and a record-book, and they hold meetings once a week, in the afternoon. They won't take in members out of our street—they have got to draw the line somewhere—and they think that a dozen or two women are quite enough for one gathering, whether they all talk at once, or take turns. They are getting on beautifully. They take two or three horticultural magazines or papers among them, and are going to subscribe for more; of course, including the *American Agriculturist*. At the meetings they read aloud some of the articles, and discuss them, and each one gives an account of her own doings and raisings, how she has managed to get up Sweet Peas, or made Nasturtiums blossom all winter in the parlor, or carried tender plants through the trying season. They are now getting up their orders for flower seeds, and considering what kinds it is best to have. The way I came to know about it is, that I am a bit of a botanist, and know the names of things, and what are annuals or perennials—(per-annuals, as an old neighbor of mine used to call them), and can tell them what sorts of things a *Calonyction speciosum* and *Zanschneria Californica* are, and if they are hardy. So they chose my wife, and even wanted to make her President, though she is not strong in flower-growing, and as to names, gets *Begonia* and *Bignonia* mixed up badly,—not for want of knowing the two things, but forgets which is which. So through her and the questions she brings to me, I get a good inside view of the operations. Seriously this Club is useful, and I wish to commend it as an example. G. A.

[This is an example to be heartily commended, and perhaps in a large town small Clubs like the one described may be more effective than larger ones. Vineland, N. J., which has been foremost in many good things, has long had a Floricultural Society composed, if we mistake not, exclusively of ladies, and much of the prosperity of the place may be ascribed to its influence. There are few pursuits in which association is so helpful as in gardening, and Clubs of this kind are useful.—ED.]

## A Cattle Shed.

A young farmer of Greenvale, W. Va., sends sketches of a shed for cattle which he has been

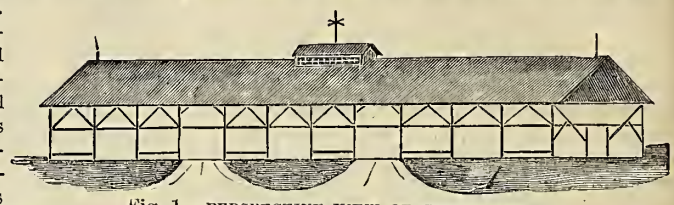


Fig. 1.—PERSPECTIVE VIEW OF CATTLE SHED.

building this spring, to serve until he can build a good barn. The shed is 111 feet long by 26 feet wide, and a cistern receives the water from the roof. The posts are 14 feet long, and there is a space above that will hold 40 tons of hay, and a space below, 7 feet high, that will accommodate 60 sheep, 20 calves, and 20 other cattle. The frame consists entirely of poles and posts that were cut in the woods, and put up without hewing. The plates, rafters, etc., were sawed. One side and two ends are boarded up, the rest is covered with clapboards. One of my men and myself cut and hauled

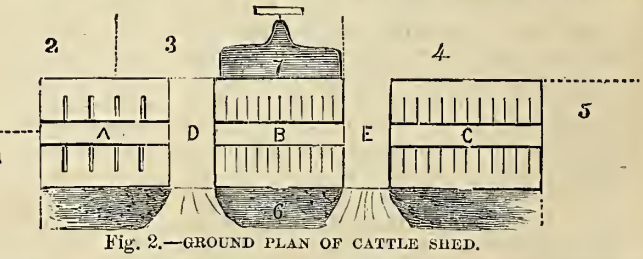



Fig. 2.—GROUND PLAN OF CATTLE SHED.

the poles, and did the framing, and it has not cost me over $50 in money. The cistern is so arranged that the water will run out into a trough until it is empty, without having to draw or pump. Figure 1 is a perspective view of the shed. The side braces are poles 8 feet long. They rest at the foot on the cross-piece at the middle of the post, and are halved in and spiked to the post, and the upper end supports the plate in the middle. Figure 2 is the ground plan, on which 1, 2, 3, 4, 5, and 6, are lots opening into all the fields on the farm; 7 is the cistern, *A* is for sheep, *B* and *C* for cattle, and *D* and

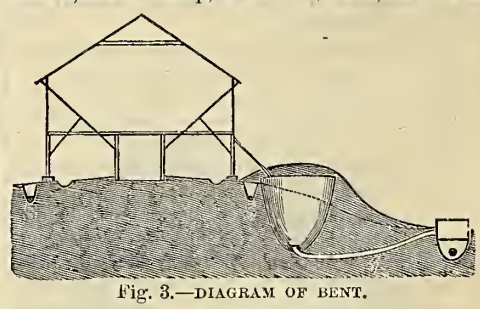


Fig. 3.—DIAGRAM OF BENT.

*E* are drive-ways. Figure 3 shows the end and middle bents. The long brace is halved into the inside post, in the joist, and in the top of the outside post, and spiked with 60-penny spikes at each place.

**Gapes.**—However frequently we may explain the fact that no living thing can come spontaneously or from nothing, there will be those who lose chicks from the disease known as gapes, who insist that the worms in the chicks' throats come into the birds spontaneously. Some even go so far as to say that they come with the chicks out of the eggs. There are yards where the gapes have never appeared. In these the chicks do not run over ground that has been used by old fowls, but are kept on fresh ground, and frequently changed. A healthy yard for young chicks may be made upon turf kept shaved closely with a lawn mower, and upon which the coops are set upon a dry floor, that can be sanded and cleaned every two or three days.

## A Camp of the Texan Cattle Drivers.

During the past few years the increase in the western cattle trade has been very large. Formerly Texas supplied the States east of the Missouri and Mississippi Rivers with grazing stock, and the direction of the droves which left the Texan prairies was towards the east. Missouri and Illinois were the principal purchasers of the droves, and from these two States was drawn the larger part of the beef of this character that was sent eastward. Now it is all changed. A large portion of the annual drive passes through Kansas, Colorado, and Nebraska, and reaches to the far off pastures of Dakota and Montana. A few years ago Colorado was supposed to be a worthless desert; now Colorado beeves compete with the prime steers of Illinois and Ohio, and many of them surpass the average of those sent from these States. Many cattle have come from Montana that were fit to ship for the European trade. The basis upon which the cattle business of these localities is built has been the Texan stock, and from this fountain head is supplied the stream which fills the vast reservoir of those north-western plains and valleys. Mingling with the stream is an inflow of pure bred bulls from Kentucky, Illinois, and elsewhere in the East, and this intermingling of bloods, results in an improved race of beeves which, as has been stated, competes fairly with some of the best graded stock of the East. But Texas is the grand source from whence comes the raw material, and the current is formed by what is known as the "annual drive." Once a year this great movement occurs, and the drive of Texan cattle, its promises and its probabilities, form the burden of the talk of cattle-men throughout the country, from the Rocky Mountains to the Atlantic. This drive consists of the surplus from the great herds, which graze upon the Texan prairies and fields; it furnishes the means by which a large part of the Texan people subsist; and it represents the profits of the graziers and the wages of the "cowboys" who handle the droves. A constant stream of cattle pours out from the State, and takes the northern trail to reach a market. From 250,000 to 300,000 head of cows, steers, and young stock, form the substance of the stream. If these cattle were strung along a trail, 8 or 10 feet apart, they would extend for one thousand miles; and although the droves are necessarily driven loosely and in very open order, that they may find sufficient pasturage, yet while on the drive, either a drove, or the dust of a distantly passing one, will be constantly in sight from any part of the wide trail that is travelled. The routes chosen are neeessarily diverse and distant from each other, so that grass may be found in abundance, and it may be taken as an indication of the verdure and herbage of these vast natural pastures, that the cattle actually improve in flesh and gain in weight while on the drive. Spreading out as the rays of a huge fan, the trails lead east, north, and west, and reach Kansas and Colorado on their way to distributing points, either in the East or the North-West. The drive is leisurely taken, and frequent rests and camps are made. A very full account of the Texan Cattle Drive, with many interesting statistics, is given in the *American Agriculturist* for December last, to which those who would learn more about it are referred. The present object is merely to illustrate one phase of the adventurous life of those engaged in cattle driving. The engraving given herewith presents a camping scene of the drovers and a breakfast previous to starting again on the route. The cattle are scattered around the camp, and the herders hover on the outskirts of the drove to prevent stragglers from straying too far. The life of a stockman is an exciting and an adventurous one, and his associations with half savage Mexicans, is far from being an agreeable feature of his business. But use becomes second nature, and the result of the experience of the majority of those who engage stockmen is that they become fascinated with their employment so long as it is profitable, and continue in it for many years.

A CAMP OF THE TEXAN CATTLE DRIVERS. — *Drawn and Engraved for the American Agriculturist.*

## Among the Farmers.—No. 42.

BY ONE OF THEM.

### Granular Butter—Treatment.

Recent writers upon butter-making have had more or less to say about "granular butter," and I find, in conversation with several butter makers, that they have very little idea of what it is, and of the facilities it offers for washing and for subjecting the butter to the action of brine. This has led me to look into the subject somewhat, and I will tell my conclusions "as far as I have got," to use the current slang. All know that when butter "comes" it is hardly distinguishable from cream. The practised eye sees in the mass within the churn a granular character. In many churns, notably the revolving-dash churns, this takes place gradually. In the old up-and-down dash churn, it occurs gradually also, but much more quickly and completely if the churn is less than half or one-third full. So it is also with the crank churns—the less they have in them the more completely is the work done, and the granules of butter appear more nearly all at once. In the reciprocating or oscillating churns, of which the Pendulum and Bullard are types, the change, when it occurs, is much more nearly simultaneous throughout the whole, and hence more marked.

At first the grains are very small, but a continuation of the process "gathers" them. They agglomerate into masses scarcely perceptibly larger—then these unite, and thus the grains rapidly increase in size, until, if the churning be continued, the butter is gathered into large masses. This is the usual process of churning and gathering butter. Granular butter is secured when the process of churning stops at that stage when the grains are but little larger than mustard seeds, say like Pearl

Barley—certainly the largest of them being no larger than grains of wheat. A little experience will enable any one to judge at which stage he can effect the most perfect draining off of the buttermilk, and most thorough washing of the butter.

It will be observed that if the grains are not large enough, they will hold the buttermilk by capillary attraction, and the whole mass will appear mushy. When, however, the gathering goes too far, the little masses of butter will enclose completely some buttermilk, which it will be quite impossible to *wash* out, and it must be *worked* out. This, of course, is fatal to the process which we are considering. We must stop churning when the grains are well formed, and float up distinct from the buttermilk, and yet are not too large. In my experience grains as large as small peas are entirely too large.

The washing of grains of butter, of just the right size, is easily and quickly accomplished. They must first be chilled by a little cold water or ice water, if convenient, and then the buttermilk

WIRE STRAINER.

may be drawn off. A few of the finer grains are almost sure to run off with the buttermilk, and I have found a little *wire-gauze strainer*, like that in the engraving, common in the shops, indispensable in saving them and preventing what in the end would be a notable waste. With this the escaped grains are skimmed out of the buttermilk, or it may be made to flow through the strainer.

WASHING.

The granular mass in the churn may now be washed with pure cold water, which should certainly be strained before it goes into the churn. No one who has not carefully observed, has any idea of the specks and minute particles in ordinary, pure natural water. We do not notice them any more than we notice the birds far up in a clear sky; if we see one a moment and lose sight of it, it is gone. It may be a question whether "if the sky were to fall we should catch larks," but it is sure enough if we strain water we shall get specks out of it.

The quantity of water should be proportioned to the quantity of butter; fully as much should be used as the original mass of the cream—more does no harm, for water certainly does not wash out the flavor—except the flavor of buttermilk. Two washings are usually sufficient, and then the butter may be removed from the churn. If the water is cold, and especially if ice water is used, the grains will be very hard, and bear considerable handling without packing in masses; but it is usually best to lift them out of the water with a butter-ladle, if

THE BRINING PROCESS

is to be followed, in which case they are placed at once in a clean tub or crock, covered with linen cloth or towel, and a barrel head, stone lid, or other "follower," which shall so nearly fit the tub as not to go to the bottom, but rest against the narrowing sides some inches below the top of the tub. Then fill up the tub with clear, strong, strained brine. The butter would of course float were it not for the follower, which may be weighted if necessary. The brine should be made of the purest and most odorless salt; it should be perfectly clear, and be decanted or poured off from undissolved salt. One hour's soaking in the brine is sufficient for the process, as is generally believed, and I know nothing to the contrary.—We need experiments to settle this and other points.—It is certainly desirable to lift the follower,—barrel-head, or whatever it be—and stir the mass of butter once or twice; and it is very important that the brine should be icy cold. Brine made with cold spring water, when freshly made, is always considerably colder than the water of the spring, and if one has no ice it is cold enough. The brine may either be drawn off, or the butter taken out of it. It may be rinsed out with brine, or with pure water, and the butter may then be salted or left "sweet"—that is, not salted.—It keeps well without salt, and as this is not the case with other "sweet butter," and as there is a large and growing demand for this article, it is quite worth while for farmers to know how they may prepare it so that it will keep.

WHAT THE BRINE REMOVES

is a question often asked. I have no record of such definite and accurate experiments that it is quite clear to me what is removed. This much seems certain;—it is something very much like casein, for when the brine is boiled or heated, flocks of curd separate. The membranous sacks which enclose the butter—the cell walls—are supposed to be dissolved. The butter will not bear much working after brining before it becomes greasy. (There is, however, no need of working it more than enough to mix in the salt, and to get it into form).—And this fact leads us naturally to suppose that the salt dissolves the cell membranes, together with any casein which may be adhering to them, and leaves the butter nearly or quite pure. This curdy substance, whatever it is, is prone to decompose, and in the ordinary treatment of butter, salt is used to preserve this extra substance from change,—not to make the butter itself keep. The casein, as it is called, in the butter, is what always changes first, and the rancidity of the butter follows in due time. For my own part, I do not see why butter thus purified by brine should not keep as well as any pure oil, or fat, like lard, tallow, or sweet oil. Experience may demonstrate that such butter is not adapted to all seasons and all markets, but so far it stands the test well. Nevertheless, without most careful analyses, it is too much to assume either that all the cell walls or all the casein, together with everything else is thus removed, leaving only the pure fat—or butter.

I have before alluded to certain Irish butter, which is wonderful for keeping sweet in all climates, and for a long time—and to the fact that this butter is worked and salted with semi-liquid salt, rubbed up with water to a pasty consistence—thus virtually working it under brine. Some butter-workers, notably the Eureka and the Reid, are adapted to working the butter in or under brine, which recommends them especially to those who pack butter for long keeping, because butter thus worked does not need so much salt to keep it.

## City Horses at Pasture.

Grass is the natural food of the horse. In spring and summer the fresh green herbage of the field and mountain springing up among the rocks, along water-courses, or in the valleys, seasoned with the twigs of shrubs and trees, and the great variety of other plants which are both pleasant to the eye and good for food, constitute a rather bulky but nutritious and acceptable aliment. This food distends the paunch and gives an outline to the animal, which, as concerns city horses, is, to say the least, unfashionable. Very heavy horses, high-bred horses, and even those accustomed from colthood to concentrated food, especially to receiving oats regularly, and whose skins are thin from having had regular grooming, protection from the weather and from the attacks of flies, do not do well as a rule when turned to pasture. It is hard to make city people understand this.

Horses are taken to pasture at various rates from $5 to $10 per month in the vicinity of New York. It will certainly cost 50 cts. a day in the city. It is thought to do horses "a world of good" to have a run upon grass—and the horses certainly appear to enjoy it. All such classes of horses inevitably run down if turned out to grass for the summer, and it will take weeks of good feed in town, and careful use, to get them back again to where they were.

A case in point has just fallen under my observation. A city-bred man owned a large farm and pastures—where the grass was thin, sweet, and abundant for active horses. A firm of Sugar Importers and Refiners, doing a large business, and employing very heavy draft horses, went out of business, and could not dispose of all their horse stock. Several were taken to pasture by the farm owner at a low rate, no provision being made for graining, and no stipulation that they should be sheltered. Permission was given to work them in consideration of the charge for pasturage. In autumn the horses were returned in pitiful plight, healthy, so far as I know, but run down, thin, and weak enough—utterly unfit either for sale or for work. A lawsuit was instituted for damages, and the case was dismissed on the ground that the farmer acted as the agent of the owners of the horses, took care of them and fed them as he had agreed. Besides, he had given grain to those which he had worked. It follows that in the opinion of the Court, the owners had damaged their own horses by sending them to pasture. This is true,—and being true, ought

CITY HORSES EVER TO BE TURNED TO GRASS?

Certainly not as these were. If they had had a good, deep, dark shed to go under at will, to get away from insects, and to protect them during cold storms, copse and young woody growth in which they might at will take shelter from the flies; running water in the pasture; plenty of good sweet grass, not too close cropped, nor yet too rank; and about one-third to half their usual feed of grain daily—say four quarts of oats and an equal measure of bran—and access to salt at all times, they would have done well,—not gained in flesh, probably; but they would have come through the summer looking fly-bitten, perhaps; but, nevertheless, in such shape that they would soon get into first-rate working order, with a new lease of life from the change. It is quite as important for farmers to understand this as for the city owners of horses—and much hard feeling saved and perhaps the annoyance of lawsuits may be avoided by the knowledge. There should always be a proper understanding of exactly what is to be done by the party taking the horses.

## Hungarian Grass and Millet.

By proper management, a second crop may often be grown upon a stubble, or upon a sod which is not to be kept in grass the next year. A quick growing plant is needed for this purpose. One of the best, if not the best of all, is Hungarian Grass or Millet, which are similar plants in nearly all respects. Either of these may be brought to maturity in six or eight weeks, the time depending upon the season and the condition of the soil. A warm season, with sufficient moisture, and a warm, dry, rich soil, will bring the crop into condition for cutting in six weeks. Although Hungarian Grass is very often written about, yet there is a lack of proper information in regard to it. It is unjustly charged with being injurious to horses, with being coarse, hard, woody, and innutritious for cows; and the latest error in regard to this useful plant, is a statement made by a Pennsylvania journal, which pretends to be agricultural, in part at least, to the effect that, "as the seed cannot be freed from chaff, 3 bushels per acre should be sown." This grass, and the related Italian Millet, resemble each other, except in the form of the panicle or head; Hungarian Grass having a close head, and Millet a looser and more broken one. In point of leafiness, yield of crop, and manner of growth, both are alike; and although Hungarian Grass is the more popular, yet there seems to be no reason for this preference. Either of these crops require good, warm, light land; three pecks to one bushel of seed per acre; the seed is small and yellow, or yellow and black, and is quite free from "chaff," like clover seed. The seed is sown broadcast and slightly harrowed in upon well mellowed ground. It may be sown as late as July, but for fodder it is well to sow in succession through June and the early part of July. It is best cut as soon as the head is formed, and when the foliage has become fully grown. It is then green and succulent, and not so hard or woody, as when the seed is ripe. The grain is surrounded by a number of short, barbed bristles or awns; when the seed is *ripe*, these bristles are fully grown, hard and sharp, and when eaten by horses, are found to irritate the stomach and intestines. For this reason the fodder has gained a bad reputation without deserving it; all possible danger may be easily avoided by good managemant in cutting early; when in the condition to make nutritious hay, the bristles can do no harm. The grass is cut and cured as common hay, and when harvested in good time, and cured green, is palatable and nutritious. For a successive fod-

der crop, to come in after oats, it is very useful, and also as one to take the place of hay; because being an annual, and grown as other annual grasses, such as oats or barley, it occupies the ground but a short time. Where the hay crop is short, and fodder is

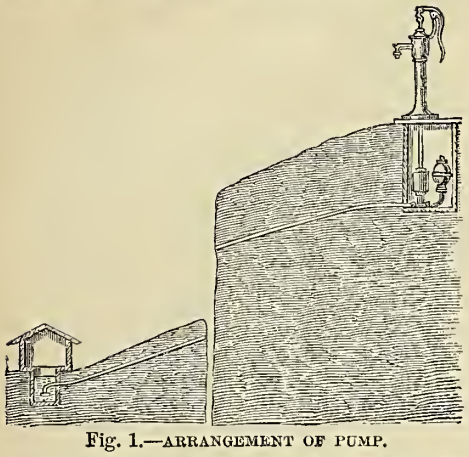


Fig. 1.—ARRANGEMENT OF PUMP.

likely to be scarce, a few acres of Hungarian Grass or Millet may serve a valuable purpose, and allow the farmer to carry his animals through the winter. Golden or German Millet is another variety which has been tested with much success. It has a close panicle, broad leaves, and grows very rank and high, giving a heavy burden of fodder. It promises to be more profitable than either of the before mentioned varieties, but will hardly displace them, as it matures considerably later, but it will be useful to sow for a succession of fodder.

## Raising Water up Hill.

Frequent inquires are made for methods of raising water up an incline, from a well or spring at the foot, which will save the labor of carrying the water to the point where it is needed for use. There have been several rough methods invented and used, but they are all troublesome and ineffective in practice, and every way unsatisfactory, except, perhaps, that they are cheap. But cheapness at the outset, is often dearness in the end, and the best is always the cheapest. The writer is now using in his barn-yard, a method that he considers of sufficient value to describe; the water is drawn from a spring at the foot of a hill, 25 feet below the level of the yard, and 125 feet distant from it. The arrangement was advised by W. S. Blunt, Esq., the inventor of the well named Universal Pump. The arrangement is shown in the engravings, which differ only in the use of air chambers, by which a steady flow is secured when the pump is at work. A spring or well, is dug at the foot of the hill, a pipe is laid in a trench deep enough to protect it against freezing, and leading to the foot of a well at the top of the hill. The well is about 6 feet deep, which is sufficient to give room for the plunger and working parts of the

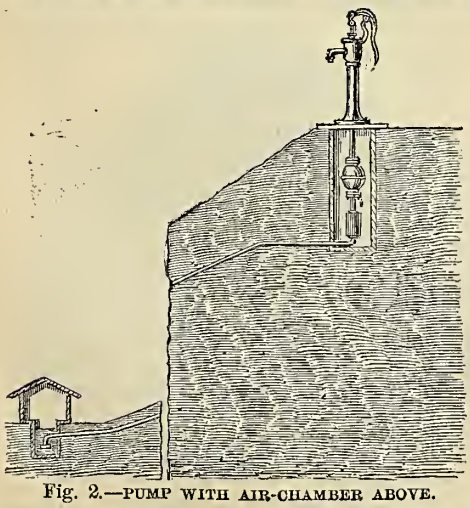


Fig. 2.—PUMP WITH AIR-CHAMBER ABOVE.

pump, with a drip cock for use in the water, to be placed safely out of reach of frost. The pipe is connected with the pump by a ⊥ joint, and is carried a few inches further, where it ends in an air chamber shown in fig. 1. The pipe at the foot dips four feet into the spring, so as to provide an ample supply of water, and has a check valve at the lowest end. In laying the pipe in the trench, it is necessary to avoid bends, and grade the trench evenly, or if a break occurs in the grade to be sure to have no depressions, but a constant ascent, although the inclination may vary in places. It is also necessary to screw the joints tightly, and seal them with white lead. The spring referred to, is covered with a small house as shown in the engraving; this is to preserve the cleanliness of the water.

## The Clover-Seed Midge.

*Cecidomyia trifolii.*

One of our farmer friends, who lives in Steuben Co., N. Y., informed us last summer, that his clover-seed crop, and that on several neighboring farms, was likely to be seriously injured by an insect which, if not new, had not been noticed before. When he further informed us that Prof. C. V. Riley, to whom the U. S. Department of Agriculture was then more or less attached, had been at his farm making observations in the field, we felt sure that the insect was receiving proper attention, and that in due time we should know all about it that was to be learned. A few weeks ago, during a visit made us by Prof. Riley, the subject of this clover-seed pest came up, and we learned the results of his investigations. The following is gleaned in part from this conversation with Prof. R., and in part from an article which he had published a while ago in the "N. Y. Tribune." According to this distinguished entomologist, this insect—minute as it is—threatens to give our farmers much trouble in the future; belonging to the very same genus, as the notorious Hessian Fly, and the destructive Wheat Midge, it is likely to prove equally injurious in its way, with those well-known pests. If the clover blossoms be examined where it prevails, the *larva* (or maggot) will be found within them, in varying numbers; it is of a bright orange-red color, and affects the clover in much the same way that the Wheat-Midge affects wheat, causing the seed to shrivel, and become worthless. When these orange-colored larvæ have made their growth, they either crawl or drop to the ground, which they enter, and bury themselves a short distance beneath the surface, or they may hide under any rubbish at hand. Having gained a hiding place, each forms an oval, tough, silken cocoon, with portions of earth adhering to its exterior, the better to disguise it. Their transformations being completed, the flies begin to issue from the cocoons in September, and may be found so long as mild weather continues, as well as in the following spring. Mr. J. A. Lintner, of the N. Y. State Museum of Natural History, was the first to call attention to this insect, at a recent Annual Meeting of the N. Y. State Agricultural Society. He there briefly referred to the ravages of the insect, and described the larva, the perfect insect being then unknown. According to Prof. Riley, a marked characteristic of the larva, is found in its *spiracles*, or breathing pores, which in this are raised on fleshy tubercles; distinguishing characters of the flies themselves, are found in the antennæ or feelers, which in the male have fifteen, and in the female, sixteen joints. It is readily distinguished from the related Hessian Fly, as that, in all its stages, is about twice the size of this, and usually with more joints to the antennæ. From the Wheat-Midge, the Clover-Midge is readily distinguished in the perfect state, the male fly of that having twenty-four, and the female only twelve joints to the antennæ. In the larval state the distinction between the two can only be made by the most critical comparisons.

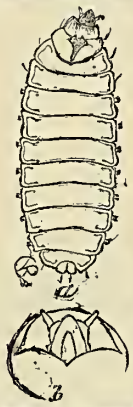


Fig. 1. CLOVER MIDGE.
*a*, larva; *b*, underside of the head of same.

The illustrations here given are from the exquisite drawings prepared by Prof. Riley himself for his Report to the Department of Agriculture. They are of course highly magnified, the real size being shown by the hair-lines, which will be seen by the side of the larva in figure 1, and above the perfect male insect in figure 3. With this brief ac-

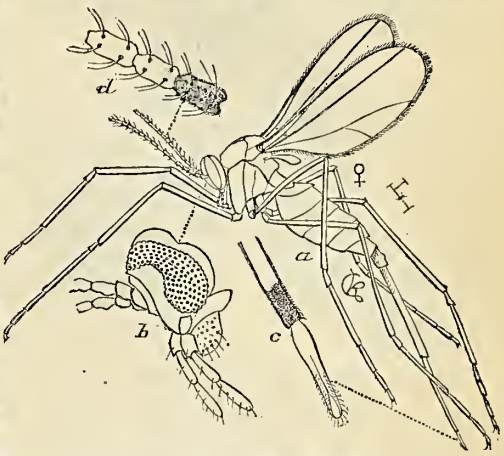



Fig. 2.—CLOVER MIDGE.
*a*, female, side-view; *b*, head from side; *c*, end of ovipositor; *d*, joints of antennæ.

count of the appearance and habits of this new trouble, and with the aid of the engravings, the farmer will be able to recognize it, and will very naturally ask how he is to get rid of it, should it appear in his fields. Here Prof. Riley's advice, while no doubt the best possible under the circumstances, will not be very encouraging to those who depend upon clover-seed as a regular crop. Where the Midge appears to any serious extent, the only method of checking its spread is, to abandon clover-seed as a crop for a number of years, and he adds: "The more thoroughly farmers combine in

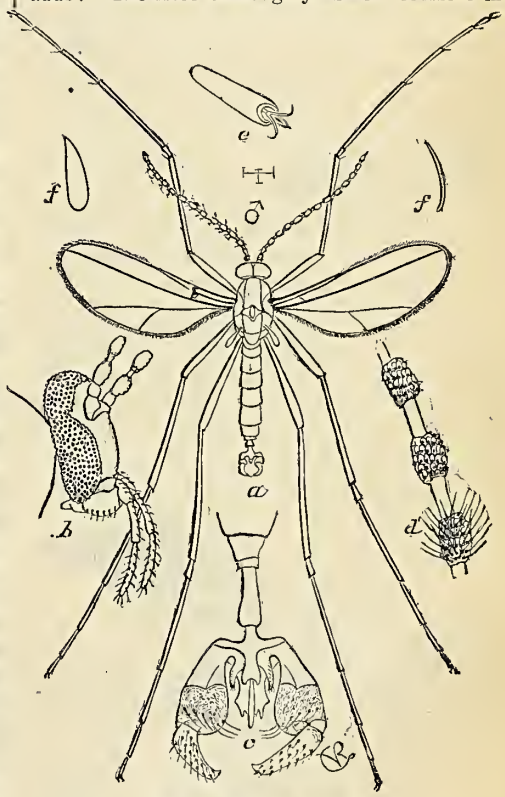



Fig. 3.—CLOVER MIDGE.
*a*, male, back view; *b*, side-view of head, showing palpi; *c*, genitalia; *d*, joints of antennæ; *e*, tarsus; *f*, wing scale.

this course in any given district, the more effectual will be the eradication of the evil."

**Consumption of Food.**—In feeding animals, it should be remembered that there is a certain quantity of food required to maintain life and the wastes of the system. This is spent without return, and upon the amount of this, depends very much the amount of profit to be derived from feeding the animal. All beyond this, that can be used as food, and can be turned into milk, cream, flesh or fat, goes to furnish the basis for the feeder's profit.

Animals differ greatly in the capacity for utilizing food, aud every owner shonld learn which of his cows or horses, consumes the most food, with the least beuefit, and weed out these unthrifty animals.

## Babbitting—or Lining Boxes with Babbitt Metal.

It is a well known fact among machinists and other mechanics, that there is less friction between two very unlike metals, than when the moving parts are of the same metal. Recognizing this fact, Isaac Babbitt, of Boston, as long ago as 1839, patented a composition for lining journal boxes, which became knowu as Babbitt Metal, aud at the present time to "babbitt" a box is a common term for the lining of a bearing with any alloy that will reduce the frictiou. Now that machinery has come into general use upou one farm—aud wherever there is machinery, friction is one great obstacle to its profitable use, it is necessary that the manner of babbitting a box should be generally known. Babbitt's original alloy was 9 parts of tin and one part of copper, but it is variously modified while retaining the name. That in most commou use consists of 10 parts of tin and one part of antimony or of zinc, and a hearing thus made offers very little friction to the movement of au iron shaft. This compound melts readily in an ordinary iron ladle, and can be poured as easily as plumher's solder. The boxes in which the shafts or journals of a machine run, are generally made of iron, and are somewhat larger than the shaft, so that room is left for a thin layer of the babbitt metal inside of the box. This anti-friction liniug is thus applied: the shaft and one half of the box are arrauged in their proper relative positious as shown in figure 1. The shaft is raised sufficiently above the bottom of the box, to permit the habbitt metal to flow hetween them. The box is provided with a few holes drilled into the iron on the inner surface (*a*, *a*, fig. 2), into which the habbitt metal flows, aud the projections thus formed hold the lining in its place. The spaces between the box and shaft at the ends are closed by means of small strips of wood, cut to fit the shaft closely, as shown at fignre 3. The melted metal is then poured around the shaft until the box is filled. The lower half-hox is then removed from the shaft, and the upper half, fig. 4, is put in its place. This has a hole for oiling at the top, and to keep this open a wooden plug is fitted into it which touches the shaft. The ends are closed and the metal is poured in as before. The half-box is then removed, and both of them are trimmed of surplus metal by means of a coarse file, and the edges are made to fit each other so that the box can be screwed together properly. It may be well to add that *block*-tin must be used; tin-plate being sheet iron covered with a thin film of tin.

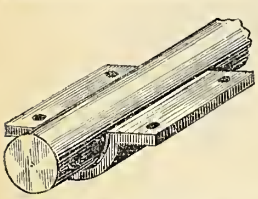


Fig. 1.—SHAFT AND BOX.

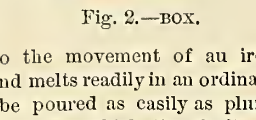



Fig. 2.—BOX.

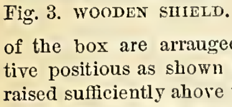


Fig. 3. WOODEN SHIELD.

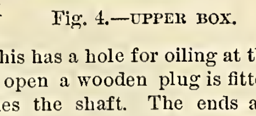
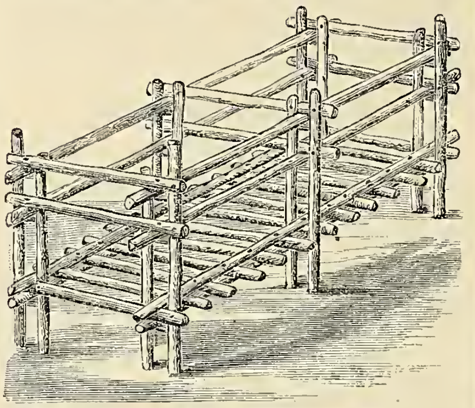


Fig. 4.—UPPER BOX.

## A Rack for Feeding Hay, Etc.

A Western farmer sends his plan of making a rack for feeding hay. These racks are largely used in the West, where hay is cheap and labor is dear; they are found convenient, and save hoth trouble and loss of fodder. The rack is made as follows: stout posts are set in the ground, about 9 feet apart, to suit the length of the rails used; stout posts are then placed about 6 inches inside of the first mentioned posts, one for each, and the two are connected together by 2-inch pins driven through auger holes in each, in the same manner as in making a straight post and rail fence. The pin is placed two feet from the ground. Rails are then placed between the posts, and resting upon the pins, and other rails are laid on these, to make a floor. The ends and sides of the rack, are built up with rails as in making a fence, putting cross pieces in where necessary. An opcuing on each side for feeding, is made by putting in pins about 2 feet above the first ones, and the rails are built up to 8 feet high from the ground, to make a receptacle for hay, of sufficient capacity to hold two or three days feeding. Racks of this kind, may be built in fields for feeding corn-fodder, or in yards for feeding green crops, aud may be made as useful in all cattle-raisiug regions as in the West. They will be found of much use in feeding cows in pens, as in "cow penning" lots in the South, and indeed this practice of turning cows into a poor lot, and feeding them there with green food by means of such racks, or others made iu a similar way, may be made of great utility in fertiliziug the soil, at a small expense for labor.



RACK FOR HAY, CORN-FODDER, ETC.

## Nitrogen in Farm-Yard Dung.

BY J. B. LAWES, ESQ., ROTHAMSTED, ENGLAND.

In the Report of the New Jersey State Board of Agriculture for 1878, page 95, the writer, referring to the immense amount of uitrogen applied to the soil, which has not been recovered in the crop, in our experiments with this mauure, states, that "Dr. Lawes, who, of all men, should be able to throw light on it, as being his own experiments, not only fails to give an explanation, but increases the difficulty by stating that, while on barley, 82 lbs. of nitrogen applied per acre, in the form of ammonia salts, was found to be too much, resulting in a crop which was too heavy aud laid, yet 200 lbs. of nitrogen, supplied in the form of dung, produced uo over-luxuriance."

This is not only truc, but I may say that 42 lbs. of nitrogen applied in the form of Nitrate of Soda, with mineral manures to one acre of barley, has, for 25 years in succession, produced as large a crop as an annual application of 14 tons of farm-yard dung per acre. We do not profess to know accurately the quantity of nitrogen which the dung contained, but we should be tolerably safe in estimating it as supplying four or five times as much as the Nitrate of Soda. During the first six years of the barley experiments we applied both 42 lbs. and 84 lbs. of nitrogen to the barley, but, finding that the larger quantity produced over-luxuriance, it was given up; the smaller quantity yielded an average crop of 48 bushels of dressed corn* per acre.——Over-luxuriance in a corn [grain] crop is at once apparent by a relatively high proportion of straw to corn.—The following table, which gives the produce of 14 tons of dung, applied to an acre of wheat for 35 years in succession, will show the effect of this manure:

| 14 *Tons of Dung Per Annum.* | *Bushels of Dressed Corn Per Acre.* | *Straw in Cwts.* |
|---|---|---|
| First...8 years...1844 to 1851 | 28 | 26⅝ |
| Second.9 years...1852 to 1860 | 34¼ | 34⅝ |
| Third..9 years...1861 to 1869 | 37⅛ | 33⅝ |
| Fourth.9 years...1870 to 1878 | 31 | 29⅞ |
| 35 years. | | |

[* What we call "corn," is usually termed "maize" in England, where most kinds of grain, as barley, wheat, etc., are called "corn." Thus, by "dressed corn" Mr. Lawes in this case means cleaned barley.—ED.]

It may be observed that the seasons between 1861 and 1869 were decidedly more favorable for wheat than more recent years; throughout the whole period, there is no indication of over-luxuriance; indeed, compared with the grain, the straw has declined of late years, and this is the more remarkable, as the 14 tons of dung must supply the laud every year with from 3 to 4 tons of that substance.

Now although we have uot published very much, yet no subject has occupied our attention more than that which relates to the assimilation, accumulation, or loss of nitrogen. In 1866 Dr. Gilbert read a paper before the British Association on "The Accumulation of the Nitrogen of Manures within the Soil." Again in 1873, in a paper upon the growth of barley for 20 years in succession, we endeavored to account for the large amount of nitrogen applied in duug which was not recovered in the crop. In the following table is given the amount of uitrogen contained in the first and second 9 iuches of the soil of the permaneutly unmanured and permanently dunged wheat experiments, taken at different periods. Samples have been taken and aualyses made down to 54 inches, but the differeuces after the second 9 inches are but slight.

NITROGEN IN THE SOIL.

| | 1865 | 1868 | 1869 |
|---|---|---|---|
| *Unmanured Land.* | | | |
| First nine inches......| 0.1090 | 0.1089 | 0.1008 |
| Second nine inches... | 0.0738 | 0.0646 | 0.0608 |
| *Permanently Dunged Land.* | | | |
| First nine inches..... | 0.1880 | 0.1959 | 0.2127 |
| Second nine inches... | 0.0810 | 0.0704 | 0.0761 |

It will be observed that while there is a steady decline in the nitrogen on the unmanured land, there is, at the same time, a rise iu the nitrogen on the dunged land. The difference in the nitrogen of the unmanured and the dunged land would be, in 1869, equal to ahout 2,600 lbs. per acre, and as the dung had been applied for 26 years, we here account for something like 100 lbs. of nitrogen per acre per annum. The sampling and analysis of a soil is, however, one of the most difficult operations in which any one can engage, and therefore too much reliance must not be placed on these figures, but we have abundant evidence of the accumulation of the nitrogen of dung quite apart from analysis, as the following examples will show:

On a piece of permaneut pasture, 14 tons of dung were applied to one acre for eight years in succession, and the crop of hay was removed every year. For the succeeding fifteen years the hay has been removed without further manuring, and in the table below will be found the produce obtained, as also, for comparison, the increase over the hay grown upon land entirely without mauure.

| | *Average weight of Hay per acre per annum.* Cwts. of 112 lbs. | INCREASE *over unmanured produce.* Cwts. of 112 lbs. |
|---|---|---|
| 14 tons of dung 8 years, '56 to '63.. | 42⅞ | 19⅛ |
| Unmanured 5 years, 1863 to 1868.. | 40⅞ | 19⅝ |
| do. 5 years, 1868 to 1873.. | 29⅞ | 10⅛ |
| do. 5 years, 1873 to 1878.. | 23¼ | 7 |

It will he seen that, after 15 years, without any application of dung, we are still some considerable way from the final exhaustion. The most remarkable instance, however, of the accumulation of the material supplied by dung, is shown in the continuous growth of red clover. Being unable to grow this plant in our fields by the direct application of ordinary or artificial manures, we sowed some seed in a piece of garden ground, which may have been used as such for centuries, and upou this soil, without further manuring, red clover has been grown for about 25 years in succession, the produce being cut and carried off two or three times every year. We learn, therefore, from these experiments, that much of the nitrogen in farm yard dung is in a very inert condition.

Boussingault, who has examined the air in the soil, has shown how large is the amount of carbonic acid diffused through it by recent dung; the constant application of dung, therefore, creates an

atmosphere unfavorable to decay, or probably to the existence of those germs which are known to produce nitrification. In nitric acid we have the nitrogen in a perfectly available form as food, under the most favorable circumstances. It is possible that almost the whole of the nitrogen applied in

Fig. 1.—CLIP OPEN.

Fig. 2.—CLIP CLOSED.

a manure might be taken up by the crop during the year of its application, but in our experiments we do not on an average recover more than 50 to 60 per cent, yet there is no accumulation of this substance in the soil, and after a wet winter but little remains for future crops.

Salts of ammonia are rapidly converted into nitric acid in the soil, but when it contains much organic matter, possibly a small portion of the salts of ammonia may enter into combination with this organic matter, and become available to vegetation at a later period. Of the various organic substances containing nitrogen, some, such as dried blood and rape cake, are almost as active as ready formed ammonia; while shoddy, leather, and some others, yield up their nitrogen very slowly.

It is evident that, other things being equal, the nitrogen which is recovered most quickly in the crop must be the most valuable to the farmer, for the interest of capital upon a manure which leaves a residue unrecovered twenty years after it has been paid for, is no slight charge. One of the most interesting and important questions at the present time, is to ascertain how much of the nitrogen in these various forms of greater or less activity, is ultimately recovered by vegetation, or, in other words, under which form of application is there the greatest loss by drainage or other causes.

It is evident that an answer to this question represents a problem of extraordinary difficulty when we consider how long a period must elapse before some forms of manure yield up their nitrogen, but still I venture to think that the examples I have given above, will throw some light on the subject of the query, "what becomes of the nitrogen not recovered in the crop," put by the author of the article in the Report of the New Jersey State Board of Agriculture.

## Hints and Helps for Farmers.

A CLIP FOR DRIVING OXEN.—The clip here described will be found of use for breaking and training young steers or bulls, and for controlling unruly oxen. It is used in Texas where the wild untamed

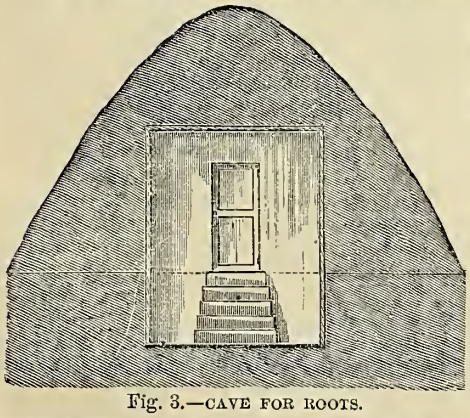


Fig. 3.—CAVE FOR ROOTS.

steer is easily controlled, and by its help those lively beasts are made to expend their energies usefully in breaking the tough prairie, and in plowing, instead of goring each other or their drivers. Lines are attached to the clips and the oxen are thus driven like horses. The clip is shown opened at figure 1, and closed at figure 2. It is kept closed by means of a spring shown in the engraving. Any ordinary blacksmith can make one of them from the drawings which are here given.

A CAVE FOR ROOTS.—In visiting a neighboring farmer recently we saw a cheaply constructed, but very good root house, which was made as follows: An oblong cellar was dug 24 feet long, and about 12 feet wide and 3 feet deep. This was planked up around with slabs from a saw mill and roofed over with the same material. The sides and roof were covered with the earth thrown out of the cellar, and were then sodded over, appearing as shown in the annexed engraving, fig. 3. The door was double, and steps were provided to descend to it. The whole was probably made without the expenditure of any money except for nails. For such a cave it is not necessary to dig into a hill side; the north end, however, should be protected by extra covering. Out-door cellars of this kind are often the only kind that the pioneer can provide, and they will frequently be found useful on older farms. It is vastly better to provide a cave like this for roots than to store them in the cellar of the house. Unless on loose, sandy, or very dry land, special care should be taken to have all water conducted away, either by good, deep drains, or by grading

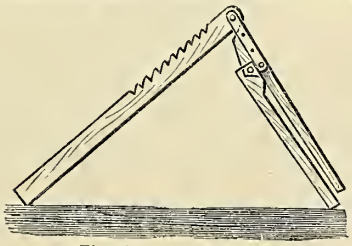


Fig. 4.—JACK RAISED.

the surface around to carry rain-water to a distance, or by both of these methods, if necessary.

A SELF-SUPPORTING WAGON JACK.—A Wagon

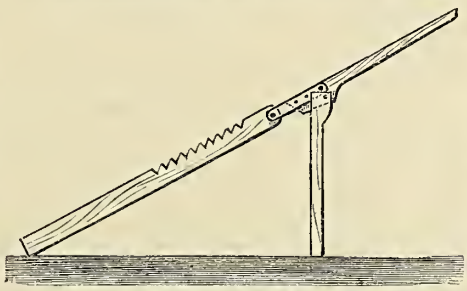


Fig. 5.—JACK OPEN.

Jack that is self-supporting and needs no chain or fastening, is shown in the annexed engravings, the sketches for which are contributed by S. C. Chase, of N. H. It is so arranged that when loaded the weight is supported without fastening the arm; its construction is easily seen from figure 4, which shows it raised, and fig. 5, in which it is seen open.

A SAFETY HALTER.—The habit of pulling at and breaking the halter is frequent with horses, both in the stable and when tied to a hitching post. It is not difficult to cure this habit by using a halter made expressly for this purpose. A description of such a halter is given by a correspondent as follows: It is made of stout harness leather, in the same manner as a common halter, excepting that it is provided with two chin straps, which are connected with a strong iron ring. The tie-strap is passed through this ring, as shown in fig. 6. When the horse is tied, the nose-band is tightened in proportion to the force with which the tie-strap is pulled, and the pressure over the nostrils stops the breathing, or interferes so much with it, that the horse is soon obliged to abandon his efforts to break the fastening.

A POKE FOR BREACHY CATTLE.—"J. D. W." sends a description of a poke for preventing breachy cattle from jumping fences. It consists of an inverted bow fastened, as shown in fig. 7, into a heavy bar of wood, by which it is secured around the neck. A second bow is fixed to the bar at such an angle that it remains suspended over the nose. This bow is provided with a few short, sharp spikes. When the breachy animal approaches a fence with

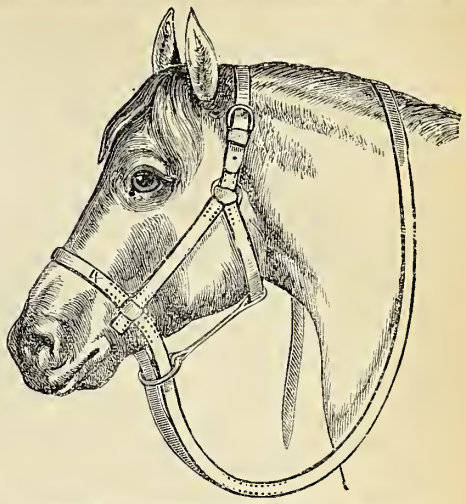


Fig. 6.—SAFETY HALTER FOR A HORSE.

a design to jump it, and raises its head for the purpose, the bar will bring the spikes against the muzzle and give a strong hint of the impropriety of the action, which is effective to prevent jumping.

## Something About Drainage.

Before one can decide as to the propriety of draining land it is necessary to know the effects of a superabundance of water in the soil. Mistakes are made in draining, and money invested in tiles and ditches often wasted. Some land has even been injured by drainage, and it is as wrong to suppose that *all* land needs to be underlaid with drains, as to believe that drains will cure all the evils which result from the bad management of land. Open, porous soils; sandy loams with sandy or gravelly subsoil; or gravel loams with sandy or gravel subsoil; or a hard-pan subsoil that can be reached and broken up by the subsoil plow; all these may be considered as being naturally drained, and not needing artificial draining. Soils that are very compact, whether clay or peaty; or shallow soils resting upon clay, need to be drained. The effect of an excess of water in the soil is to make it hard and compact, and unproductive; although filled with the elements of plant food. Excess of water of course prevents the access of air, and hence it keeps the soil cold. In fact the larger the amount of vegetable matter there is in a wet soil, the nearer it approaches to a peat swamp, and it becomes sour, heavy, cold, and unprofitable to work. The addition of more manure to a soil in this condition will not mend its character; the only remedy is to remove the water, when the changed nature of the soil will at once become apparent. The expenditure of money in drains, under these circumstances, is well made, and an energetic farmer can afford even to

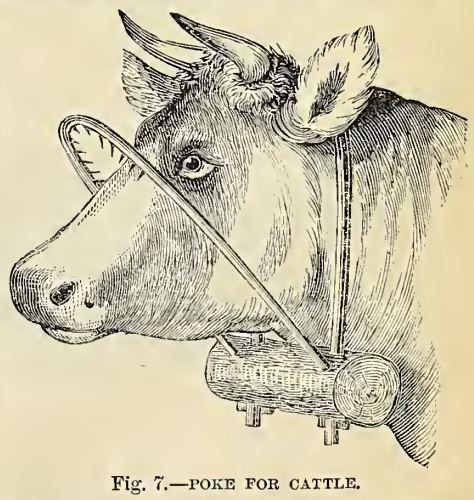
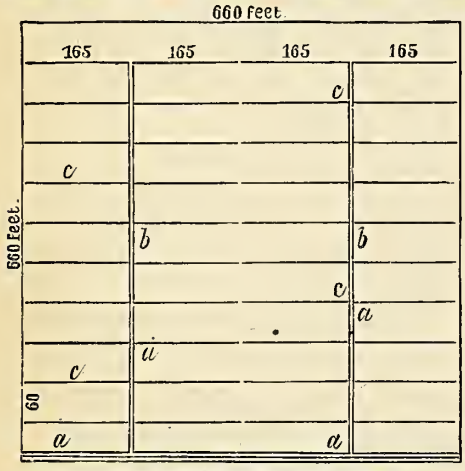


Fig. 7.—POKE FOR CATTLE.

borrow money to make the needed improvements. The materials and size of the drains are worthy of study. Porous tile is the best material. If well burned, tile is practically indestructible. The di-

ameter of the tile should be sufficient to carry off any sudden excess of water that may fall upon the land. The diagram shows the drainage of a 10-acre field; this (or one of 5 acres), may be of 3-inch tile; the sub-mains of 2-inch, and the laterals of 1-inch. These are distinguished in the diagram by the letters *a*, *b*, and *c* respectively, the mains or outlets being marked *a*; the drains are 66 feet apart, and connect with 2 sub-main drains and 1 outlet drain. In some cases the lower part of the sub-mains should be of the largest size, as they will sometimes receive a large flow of water. The small drains are laid in lengths of 165 feet and 66 feet apart, and may discharge, with a fall of 6 inches to the 100 feet, into the sub-mains with an equal fall or less, according to the character of the ground. Indeed, upon this will depend entirely the whole lay out of the system of drains. The joints of the laterals with the mains need to be carefully made. A good manner of making them is to cut an opening into the larger tile with a pointed mason's chisel, and insert the smaller tile properly and cover the joint with cement. The points to consider in laying tile are: to have the drains at least 2½ feet deep; to have the fall as regular as possible, lest sediment be deposited in the slower running places; to avoid broken tile; to lay from head to foot of the drain; to pack the earth well about the tiles as they are laid, lest they be displaced in filling the ditches; to have the tiles sufficiently large, and to use only well burned ones that ring when struck. Where an important system of drains is to be laid, it will be well for one not familiar with such work to employ a surveyor or engineer to make the levels, and lay out the ditches, but the works upon draining (see Book List) give sufficient instruction for all ordinary cases. The plan given herewith is calculated for a piece of land that is nearly or quite level, or has a moderate slope only in one




PLAN OF DRAINAGE OF TEN ACRES.

direction, the fall being wholly in the ditches; it may be varied by placing the tiles from top to bottom of the field, and discharging the water directly into the outlet. In this case the upper part of the drains would be laid with inch tile, and the lower half of them with tile two inches in diameter. The outlet may be either an open ditch or a larger main flowing through a lower piece of ground.

**Late Chickens.**—Late chicks may be made more profitable than early ones. Chickens from eggs set in August and September may be kept warm in a tight, glazed house, and fed so that they will grow continually through the winter, and if they come later all the better, if they are well kept and fed. The earlier broods will be salable at good prices, when the market is bare of chickens, and the later ones will furnish spring chickens, long before the usual supply comes to hand. Spring chickens hatched in the fall or even in winter are rare, but not entirely unknown to a few persons, who have made the discovery, that, with good feed, warm quarters, a warm mess at least once a day, warm drink and cleanliness, there is no difficulty at all about raising them, and at a good profit.

**Amount of Food for a Calf.**—Young animals are more frequently injured by irregular or over-feeding, than by starving. A calf may be reared very well on 8 quarts of milk a day, up to the age of 10 weeks. It is then able to digest some solid food, and two ounces of mixed bran and cotton-seed meal, will be of great advantage, especially if given with a little cut grass or hay. Water is necessary for a calf that is as yet unweaned, and some, fresh and pure, should be offered at least twice a day. An Ayrshire heifer calf, thus reared by the writer, is, at the age of 12 weeks, precisely half the weight of its dam, which is over 2 years old.

## Moles and Mole Traps.

The request made in May, for the experience of our readers in the destruction of moles, was re-

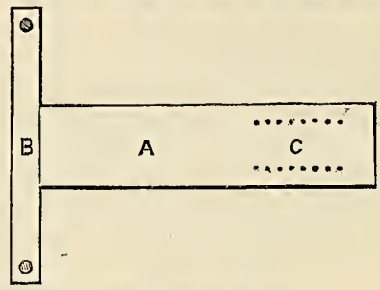



Fig. 1.—PLAN OF TRAP.

sponded to by a large number. The substance of what was said on poisoning the animals was given last month. In the way of traps, several of those sent are patented, and as these can not be made by our readers, we do not describe them. Of the large number of unpatented traps, we have selected those that seem to be the most unlike any that we have given in former years. In some cases, plans of traps upon essentially the same plan were sent by several different writers. The larger number of designs are like that shown in figures 1 and 2, differing in some unimportant details. Traps that, like this, act by thrusting a number of long sharp points into the ground, may be called "hatchel traps," of which the numerous forms differ mainly in the manner of springing them. We select the plan sent by C. Van Houten, Esq., Essex Co., N. J., who writes: "When I moved to my present residence, I was so overrun with moles that it was impossible to succeed with a garden, and now I am free from them. There is no patent on this, and I hope it may benefit your readers as much as it has myself. Figure 1 shows the plan; *A* is a piece of 2-inch pine plank 48 inches long and 10 inches wide; *B* is a piece of 2-inch plank 3 inches wide and 36 inches long, with stout, hard-wood pins in the ends to steady the trap; *C* is two rows of pins, set 1 inch apart, and 8 in each row, made from hard iron wire, 10 inches long, and pointed at lower end. Figure 2 shows trap set; *A* is an ordinary figure 4; *B* a piece of 1-inch board, nailed over the pins to prevent pushing out; *C* is a stone to force the trap into the ground; *D* the pins projecting 8 inches through the plank. To set the trap, select a *main* track, lay down your trap so that the pins cross it. Then press all the pins firmly into the ground. Raise and lower the upper end of the trap several times, in order to be sure of no obstructions, and also to facilitate the entering of the pins into the ground when the trap is sprung. Should the pins strike any hard substance it can be easily removed, or, in stony ground, the earth can be all removed to the width and depth of pins, and replaced by

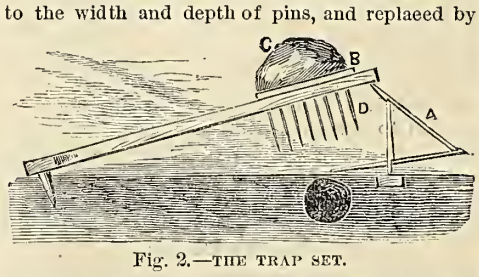



Fig. 2.—THE TRAP SET.

soil free from stones. Now firmly press down the track between the two rows of pins and set the figure 4 with its lower end, which should be two inches wide, directly over the track, and so adjusted that a slight movement of the mole in raising the ground will set it off. No matter from which direction he comes, there is a row of pins over him when he springs the trap, and the weight drives the pins through him when the trap falls. This is a sure thing if the trap is properly fully set. Care should be taken to dig down and get hold of the mole before raising the trap, as sometimes the trap may have just fallen, and the animal is not dead."....We have room at present for but one more trap—the very simple one shown in figure 3, an account of which was sent by Wm. Richter, of Alabama. He places a jar in the ground below the level of the burrows; the moles fall into this as they pass along. An improvement on this method is used by a New Jersey farmer; he takes a 3 or 4 gallon common glazed butter-jar, and cuts holes, which may be easily done with a cold-chisel, 3 inches below the upper edge, as shown in the engraving; the jar is sunk so as to bring the holes on a level with the run; the cover is then put on and the earth replaced so as to exclude light. This trap has been found effective, as the moles easily fall in and can not climb up the smooth sides; a jar with sides sloping outwards below should be chosen, if possible. A similar method is in use in England for catching field mice. In view of the fact that every one has neither the skill nor the patience to perforate the sides of a stone-ware jar, we would suggest that a large tin sauce-pan with a cover, and holes in the proper places, would answer as well. If the sides are made flaring downward towards the bottom, it need not be very deep, as

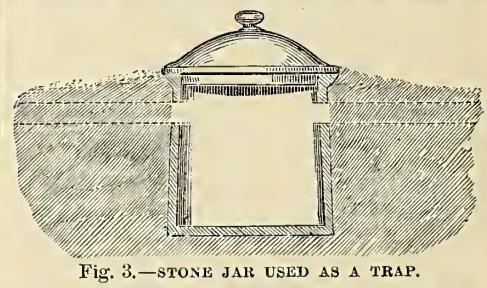


Fig. 3.—STONE JAR USED AS A TRAP.

the moles could not get up the sides, as they probably can not jump far. Several other styles of mole traps must wait until we can give them room.

## Keeping a Cow upon a Small Plot of Land.

Many persons would keep a cow if they could be assured of a sufficient supply of feed. The average milk that can be purchased, and "store" butter, are very inferior to those made at home. It is a fact that a small cow can be well kept for 10 cents a day, including winter feeding. With half an acre of ground devoted to producing fodder, a cow may be fed through the whole summer and part of the winter. For instance, half an acre is 80 square rods. One square rod a day of good grass, corn-fodder, or oats and peas, will feed a cow of 450 or 500 lbs. (the average weight of a Jersey or Ayrshire heifer) for one day, and there will be some to spare. The ground may be made to produce two or three crops in the season. Suppose a beginning is made now; 20 square rods may be seeded down at any time in August with Red Clover and Orchard-Grass, and then afterwards top-dressed liberally with manure. This will give a heavy cutting in May or June, which will feed a cow for 20 days, and may be cut again in July or August. Sow twenty rods to rye in August, which may be cut before the grass and clover is ready, and may then be sown to oats or Hungarian Grass, which will be ready to cut in July; and the ground sown to barley, fodder-corn, ruta-bagas, or turnips. Twenty rods may be sown to oats in March or April, to cut in June or July, when the ground may be planted with sweet corn for fodder, with turnips sown between the rows. Twenty rods may be sown with peas early in April, which will be ready to cut in May or June, and the ground may be planted with cabbages at 2 feet apart, giving 1,300 or 1,400 heads in the fall for late feeding. There will in all be the equivalent of an acre and a quarter of crops, which, well manured with the droppings of the cow, can be made to produce a very large yield. The foddering will be about as

follows: April, rye; May, grass and clover; May and June, peas; June and July, oats; July and August, grass and clover and fodder-corn; September, barley or fodder-corn, and thinnings of the turnips; October and November, cabbages, and some of the surplus fodder which has not been consumed but has been dried for this purpose. After this will come the turnips, helped out by the remainder of the dry fodder, and hay will need to be purchased to get through the winter. There must be no time lost in replanting, but as the crop is cut in strips through the plot it should be sown at once if only a strip 6 feet broad or as wide as a swathe of the scythe will leave. For the cultivation of such a plot the Rue hand-plow and cultivator would be sufficient, and it would be no more than agreeable recreation for the owner of the cow and his family to do the little farming that will be needed, with the occasional help of a boy to wheel the manure out of the yard to spread upon the ground as soon as it is sown or planted. The cow should be bedded with dry earth or hard-wood saw dust, and the yard should be littered in the same manner and frequently scraped clean. The comfort derived from having plenty of milk, cream, butter, butter-milk, pot-cheese, and whey, and the puddings and other things, only possible with a plenty of milk, that will come upon the family table during the year in consequence of an abundance of it, will well more than repay the light labor involved.

**A Little Oil.**—Lubrication of the axles of vehicles, including even wheelbarrows, and of the journals of machines, is not only a saving of power in their use, but it prevents waste and destruction of the material of the working parts. Nevertheless, if we should examine a hundred wagons, reapers, or fodder cutters at any time, ninety or more of the hundred, would be found wanting oil or other lubricants. The choice of a lubricant is frequently ill made. Common kerosene oil is too often injudiciously used in place of a thicker or more bland oil, because the heat produced by the friction, rapidly vaporizes the oil, and leaves the journal dry. Crude petroleum for the same reason is fitted only for very slowly revolving journals, such as water wheels. For very heavy machinery or for gearing, tallow and black-lead rubbed up together, is the best lubricant, and is also the best for wagon and carriage axles, during the hot weather. For light running machinery, sperm oil is the best; good olive oil that has not become rancid, and acid, is perhaps the second best, and for winter use, lard oil is excellent, but is rather too drying to be a first class lubricant. Castor oil is better for axles in the winter time, and black-lead mixed with it, is a help at any time.

## To Sink Deep Milk Cans.

In using deep cans for setting milk in cold water pools, a difficulty is sometimes experienced in preventing the cans from upsetting and spilling their contents. In using the excellent system known as the Cooley Creamery, we are obliged to use the inconvenient cross bars, not only to keep the cans down, but to fasten the covers in place. A new improvement invented and used by the writer, and one not subject to patent, so far as known at least, is as follows: A leaden band of sufficient weight is attached to the bottom of the can, as shown at figure 1. This may be cast in the shape of a moulding, by taking as a pattern, a piece of ordinary wood moulding, of the right size, and bedding it in wet plaster, having first oiled it well. This will form the mould into which, when dried, melted lead may be poured. By making the band the right length, it may be bent around the bottom of the can or pail, and fastened by a piece of copper wire, or a tie and two screws. The band may be made in two parts, as shown at fig. 2, and these may be joined in the way described or in any other convenient manner. By affixing this to a deep pail, that may be placed safely in a pool. To keep the cover down when the cans are submerged as in the Cooley System, the writer uses a heavy leaden knob, fastened to the cover by a screw, the head of which is afterwards covered inside with solder, to make the joint air-tight. The knob is made by pouring melted lead in a mould of common plaster worked over an ordinary porcelain door-knob; when the plaster has set, and is dry, the mould is separated into two parts, by cutting with a fine saw. If the knob is not heavy enough to keep the cover down safely, a round plate of sheet lead may be placed under it, and fastened with the knob, by the screw before mentioned. The cover, with the knob, is shown at figure 3.

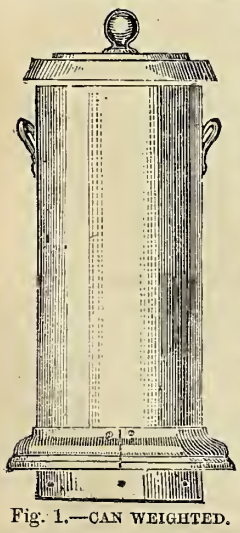


Fig. 1.—CAN WEIGHTED.

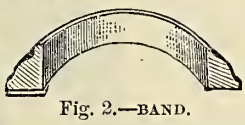


Fig. 2.—BAND.

Fig. 3.—COVER.

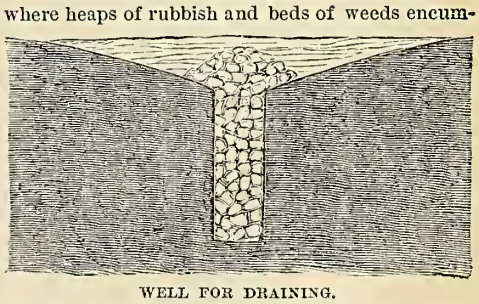
## "American Jute"—What is it?

In the *American Agriculturist* for May last, (page 185), there was an article upon the Jute of the East Indies, in which reference was made to a former speculative operation in "American Jute," and we mentioned, with a caution, that the matter had been revived. Recent information makes some explanation necessary. Some 15 or more years ago, taking advantage of the fact that, like most plants of the Mallow Family, the common Rose Mallow (*Hibiscus Moscheutos*) of the marshes, had a strong, fibrous bark, some speculators advocated its culture as a fibre-producing plant. We showed at the time that its culture could not be profitable, and that the whole excitement about "American Jute" was to enable the plants and seeds to be sold at a great profit. Noticing that the subject of "American Jute" was before the Legislature of New Jersey, and supposing, from the name, that the plant was the same, we gave in May a word of caution. But the plant that we long ago saw could not be profitable, and the one concerning which legislation was sought, are two very different things, and the matter is of so much importance that we wish to explain. At the great Centennial Exhibition—which appears all the greater as we look back upon it—no State was more ably represented than New Jersey. Its State Commission was one of the most active, not only in securing full and creditable exhibits, but in the returns it made to the State it represented. The State contributed freely, and, thanks to its most excellent Commission, it received more than it gave. As an outgrowth of the State Centennial Commission, the Legislature instituted a "Bureau of Statistics, Labor, and Industries," whose duty it should be to look after the varied and growing industries of New Jersey. The Chief of the Bureau is James Bishop, Esq., an active member of the Centennial Commission, and its Secretary is Sam'l. C. Brown, Esq., the most efficient President of that Commission. The first Annual Report of this Bureau is before us, and gives—what is rarely found in such documents, a wealth of interesting matter. The Secretary, Mr. Brown, became much interested in the fibre products of the Centennial, and was led to investigate the fibre-producing qualities of a very common plant, the "Velvet-Leaf," or "Indian Mallow," *Abutilon Avicennæ*. This plant, a native of the East, is thoroughly introduced in all the older States, and is frequently found in cultivated grounds. Mr. Brown found that this plant would yield a valuable fibre, and, aided by some parties who are interested in fibre-making machinery, produced fibre of great excellence, which has attracted much attention at home and abroad. The plant, Indian Mallow, will grow to the hight of six feet or more; it has leaves of the shape given in the engraving; they are very soft and velvety to the touch; the small yellow flowers are produced in the axils of the leaves, and are followed by a star-shaped capsule, shown separate, containing the seeds. In September, 1865, we figured and described this Abutilon as a weed, but as our engraving gave the plant in its young state only, we make use of one on the next page, kindly loaned by the Bureau referred to, as it shows the mature plant, with its star-shaped seed-vessels. That the plant will yield a fibre that can be used for all the purposes to which imported Jute is suited, there would seem to be no doubt. The N. J. Bureau were so impressed with its value that they proposed to the State Legislature to offer a bounty to encourage the cultivation of this and other fibre plants; the bill passed the Lower House by a large majority, but failed in the Senate through being introduced at the close of the session. However, the Bureau have taken measures to have the matter fairly tested; seeds have been distributed to those who would experiment with it, and Messrs. Lafranc & Paliser, of Philadelphia, the manufacturers referred to, offer to purchase the stalks. We learn that, through the efforts of the Bureau, there will be at least 100 acres of the plant grown in the State this season—enough to test it fairly. The seed is sown broadcast on rich ground, and sufficiently thickly to insure straight, unbranched stalks. Of course there is much to learn about the proper cultivation and methods of preparing it, but these will soon follow. The specimens we have seen show a fibre of great excellence, which, besides answering all the purposes of the Eastern Jute, may be converted, by cottonizing and other processes, to uses to which that is not applicable.

Thinking it strange that so common a plant, furnishing so fine a fibre, should not have been previously utilized, we looked into the matter somewhat, and find that in the South of France, it has been used "for making choice cordage, and on account of the high price this brings, it is cultivated for this purpose." It however remained for our New Jersey friends to see in the fibre a material which could be converted into Gunny cloth, and other coarse fabrics. The importance of this may be appreciated when we state that in one year, the California farmers paid over $2,450,000 for wheat sacks, and that to bale the crop of our cotton growing States, costs annually an outlay of about $4,000,000 for bagging. To save even a portion of this outlay, is a worthy object, and we hope that the experiments now instituted by the New Jersey Bureau, may meet with full success. Should they be successful, they will be of national importance, as the plant may, in all probability, be cultivated wherever Indian corn will make a crop. We hope to keep our readers advised of the result. The name "American Jute," is to be regretted, as the plant is not *American*, nor is it *Jute*, but it is now too late to hope for a change. As our friends interested in the matter say, "Jute" is used as a term for the fibre rather than the plant, and "American" indicates the place of the production of the fibre, rather than the origin of the plant, so we are forced to accept it, and wish all success to "American Jute."

## Mending Waste Places.

There are but few farms that have no waste places where heaps of rubbish and beds of weeds encumber the ground. Some of these are around buildings, others in corners of fences or along fence rows, some are damp spots which could not be plowed in season, or places where stone heaps or clumps of bushes prevent the working of the land. These unsightly blemishes ruin the appearance of the farm; neatness is wanting, and disorder conspicuous. To redeem these spots is but a trifling



WELL FOR DRAINING.

matter. The ground about buildings is generally rich, and weeds grow profusely. Where weeds grow, grass will grow. Let these weeds be kept mowed, and some Orchard-Grass seed sowed, and these spots will furnish many a wagon load of fresh grass for the cows and horses during the season. Fence rows may be kept clean by leaving a broad headland unplowed, and keeping it in grass, and mowing this for hay or for green fodder. The frequent cutting will kill the weeds and encourage the grass. The broad path will furnish a wagon road around the field, which will always be convenient. Damp spots may be drained by digging a well in the center and filling it with stones and leveling the hollow with the cast-out earth, as shown in the accompanying engraving, where the light shading shows the filled-in earth. Stone heaps may be buried out of the way, and clumps of bushes may be cut down or trimmed up and made at least ornamental to the landscape if not useful for any other purpose. We have before suggested, as an excellent method of disposing of such rubbish as will neither burn or decay, to dig a well, provide it with a proper cover, and deposit here all broken crockery, useless tinware and such rubbish, where it will be out of sight, and where they can do no injury.

## Velvet-Grass—Meadow-Soft Grass.

Among the numerous specimens of grass sent us to be named, none occur more frequently than the Velvet-Grass, or Meadow-Soft Grass (*Holcus lanatus*). This grass is in itself so handsome, and so unlike in appearance to other grasses with which it may grow, that it is sure to attract the attention even of those who are not especially observant. Though the books generally speak of it as occurring in moist meadows, we have often found it on the poorest sandy knolls, where little else flourishes. It grows in tufts, a foot or two high from a perennial root; its leaves and sheaths are of a very pale green, being densely clothed with short soft hairs, which make them velvety to the touch, and have suggested the common names given above. The flowers are in a rather regular panicle which is very pale and often with a reddish tinge that increases its beauty. The structure of the *spikelets*,

Fig. 1.—VELVET-GRASS OR MEADOW-SOFT GRASS.

or flowers, as they are popularly regarded, is so peculiar that the grass may at once be identified by those who look closely at such things. Figure 1 shows the form of the panicle or flower cluster and the foliage. In figure 2 a separate spikelet is given, of course greatly enlarged; below are seen two

AMERICAN JUTE.—(*Abutilon Avicennæ.*)—*See previous page*

empty chaffy scales, the *glumes*; the uppermost of these has a very minute bristle just below its point. Within these glumes are two *florets*, one above another, and separated by a short stem. In the plant these florets are enclosed by the glumes, which in the engraving are bent back that the parts may be more plainly seen. Each floret consists of two chaffy scales, the *palets*, within which the stamens and pistils are seen in the lower floret, while in the upper floret are stamens only. Besides this difference in the two florets, the upper one has upon one of its palets (the lower) a curved bristle, as seen in the engraving. These characters, aside from its marked velvety softness, will allow the grass to be readily distinguished. Those who are attracted to this grass by its showy appearance, are disappointed to learn that it is worthless as a forage plant. The European writers upon grasses mention it as a weed, the introduction of which into meadows and pastures is to be avoided. This grass presents one among many instances where a plant may be worthless in one locality, and of value in another. While it is stated that animals will eat all the surrounding herbage and leave the Velvet-Grass untouched, we have had letters saying that animals preferred this to all other grasses. Both statements are true; the first has reference to localities where there is an abundance of better grasses, and the other from states where the grasses are few in number and generally of a quality inferior to this. As we advise our friends upon the northern border to grow crab-apples if they can raise no others, so we say to those living far south, raise Velvet-Grass, if that is the best that will grow with you. But it appears that Velvet-Grass has other uses. In that very creditable Report on the Grasses of Tennessee, by Col. Killebrew, the State Commissioner of Agriculture, it is stated that this is unequalled as a grass for lawns. It has been very difficult to find a grass suitable for lawns in the Southern States, and should this do as well further south as it is reported to do in Tennessee, it will meet with great favor. According to the Report: "a yard turfed over with this grass presents a most lovely appearance, and looks as if spread with a velvet carpet." The same Report quotes Mr. Gregory, of North Carolina, in favor of its utility as a hay crop; he says that "Orchard-Grass in the same field will not compare with it." There now comes from North Carolina a still more important statement as to the value of Velvet-Grass. Prof. A. R. Ledoux, who is doing much good work as Chemist in charge of the Experiment Station at Chapel Hill, N. C., sends us an interesting letter from one of his correspondents—one who is evidently intelligent and has given much attention to the relation of grasses to the agriculture of the State. This gentleman writes in reference to Velvet-Grass: "I have come to the conclusion that it is about the only thing that it will pay to use to recuperate the worn-out lands of the South. I believe this grass to be very valuable; on the driest lands or on the wettest bottoms, it grows about as high as oats on the same land, and where it is too poor for other grasses to grow. I sow it with Red-top on poor lands, mow occasionally for two or three years, and then turn under and sow Orchard-Grass with Clover; I let these stand for some time, and when they are turned under, my land will bring eight or ten barrels of corn to the acre. I usually keep 80 acres in grass, 80 in corn, and 80 in cotton, rotating as the sod gets too tough. Orchard-Grass, Clover, and Timothy, will not grow upon land so poor as where this grass (the Velvet) will make a fair crop."—This is a more important matter to Southern farmers than those who have no difficulty in raising a crop of grass can understand. If this Velvet-Grass, turned under, will prepare poor land for Orchard-Grass and Clover, it is a great boon to Southern agriculture, and we thank Prof. Ledoux for allowing us to make use of the above quoted letter in advance of his annual Report.—A word to Southern farmers. We every now and then hear that the Commissioner of Agriculture, or the Department of Agriculture of Tennessee, of North Carolina, or of Georgia, is about to be discontinued by the Legislature as a needless expense. Don't allow it to be done. The *American Agriculturist* talks politics so far as this. Send to your Legislatures men who will legislate in favor of farmers. We who are at a little dis-

Fig. 2.—SPIKELET, MAGNIFIED.

tance can see the great good already done in Tennessee, in North Carolina, and especially in Georgia because the oldest, by their respective Departments of Agriculture under the several efficient Commissioners. We look upon their work with the greatest interest, and can perhaps see better than those close at home, the real benefits that have resulted and are likely to result from their labors. Economize elsewhere, but not in your school fund to educate your children, or the small expenditure for your Departments of Agriculture, which are educating the farmers. The farmers have this matter quite in their own hands, and they should elect men who will sustain these most useful agencies.

## The Neapolitan or Daffodil Allium.

Those with only a limited knowledge of plant names are aware that the Onion, the Leek, the Garlic, and other odorous and useful plants of the kitchen garden belong in the genus *Allium*. But it is not so generally known that this genus contains plants of real beauty, and even of fragrance, in the proper sense of the word. Some of our native species, especially those from the far-West, are very pleasing, while various parts of the old world furnish such a number that it is safe to say that over a hundred species have been first and last tested in European gardens. The Neapolitan Allium is one among the examples frequently met with, where an old and long-cultivated plant acquires a new interest from a new use being found for it. This species, *Allium Neapolitanum*, is not, as its specific botanical name, and one of its common names would imply, restricted to the vicinity of Naples, but is a native of the South of France and of Southern Europe generally, of the islands of the Mediterranean, and it even extends to Northern Africa, showing the folly of imposing local names without wider knowledge. Our engraving, taken from a forced plant, is somewhat undersized; the stem, under favorable conditions reaches a foot, or even 20 inches in hight, with leaves broader in proportion. The rather loose umbel stands well up above the leaves, and consists of flowers having a purity of white which recalls that of a pure white Narcissus. This Allium is hardy in England, but did not prove so with us last winter, in the only trial we have made of it. Last winter was exceptionally severe upon many plants, and no covering was given the bulbs; those kept in a cold-frame passed the winter in safety. This old plant has suddenly become of commercial importance in the London flower market, where it is largely used for bouquet making; pure white flowers of small size and manageable shape are in great demand by makers of bouquets and floral designs, especially if, added to these, there is the quality of lasting for a long time after cutting. The fact that the flower clusters are brought from the South of France, and arrive, according to "The Garden," at Covent Garden Market in a fresh state, shows a remarkable persistence. The plant forces so readily that we bring it to the attention of those who grow "cut flowers" for winter, and it will prove very satisfactory in window culture. The engraving was made from plants that bloomed in a greenhouse, where there was only sufficient heat to prevent freezing. The small size of the bulb, and the slender foliage, allow in forcing it a great number of flower-clusters to be produced in a small space—which in a commercial view is a matter of no little importance. "Scratch a Russian, and you'll find a Tartar," is not more true than "crush an Allium, and you'll smell ingyuns." Moral: Don't crush.

THE NEAPOLITAN ALLIUM—(*Allium Neapolitanum.*)

## The Oriental Catchfly.

Rarely have we been more strongly impressed with the beauty of a plant at first sight, than in coming across a *Silene*, which may be called the "Oriental Catchfly." We saw this in the collection of hardy plants of Messrs. Woolson & Co., Passaic, N. J., where it formed robust, much branched specimens about two feet high. A branch rather less than the average natural size is shown in the engraving, which, while it gives the shape of the leaves and flower-clusters, of course quite fails to convey the color effect. The foliage is of the most tender, pale glaucous green, while the exceedingly dense, almost perfectly globular heads, one and a half to two inches across, the very largest being even nearly three inches through, are of a bright lively rose-color. Upon inquiry we learned that the plants were from seed sent out by a well-known European seed-house as *Silene orientalis*, var. *compacta*. Wishing to make our flower-loving readers acquainted with such a fine hardy plant, we had an engraving made, not supposing that there could be anything obscure about such a striking species. But upon looking up, both its horticultural and botanical history, we found ourselves at once surrounded by difficulties and contradictions. Mr. Robinson, in his usually accurate work on Hardy Flowers, gives *Silene orientalis*, evidently referring to this plant, and says it is a perennial, and that its "Native country is unknown." But botanists do not recognize any such species as *S. orientalis*, it being a garden name. Vilmorin and Decaisne both give "Oriental Catchfly" (*Silène d'Orient*) as the common French name of *Silene compacta*, a Russian species, the figures in both works showing that these authors have one plant in view, but these authors say it is a biennial. Turning to Ledebour's "Flora of Russia," it is spoken of twice in the description there given as "perennial or biennial(?)." But this is sufficient to give an idea of the difficulties often met with, if one would trace up the history of a plant and endeavor to find accurate information upon so simple a point as to whether it is a biennial or a perennial. We shall be obliged to await the result with the plants of Messrs. Woolson & Co. before its character in respect to duration can be satisfactorily known. Should it turn out to be only a biennial, it will be well for our seed-dealers to add it to their lists, though our cultivators are generally too impatient to wait a whole year before a plant yields them flowers. With most biennials this time may be shortened by sowing the seeds the last of August or the first of September; the plants will be large enough to winter well, and they will bloom the following summer. Should this Catchfly prove to be a perennial—as we hope it may—then the dealers in such plants will no doubt make it known.

THE ORIENTAL CATCHFLY—(*Silene compacta.* [?])

## Fungus—Fungi—What are Fungi?

At almost every gathering for agricultural or horticultural discussion, there are very apt to be some who must speak on every subject, and give an answer to every question. These men when cornered find "electricity" a convenient refuge; it sounds much wiser than a frank "I don't know." When

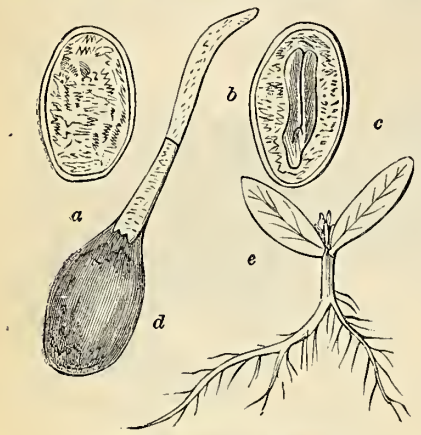



Fig. 1.—SEED AND SPORE.

the obscure blights and other diseases, which attack grain and fruit plants, and fill the cultivator with surprise and dismay, are discussed, we hear less of "electricity" as the cause, but of late it is ascribed to "fungi." If one in search of information ask these ready talkers "*What* fungi; when and where do they attack?" it is too often the case that their whole stock of knowledge is exhausted in saying "fungi." Though the term is often unmeaningly used, the answer, giving fungi as the cause of many plant troubles, is the right one so far as it goes.

To be able to destroy or avoid these pests, it is in the first place necessary to understand them. They are objects of great interest as regards their structure, habits of growth, methods of propagation, etc., and adding to this the pecuniary importance of a knowledge of them, we have in FUNGI a subject which demands our careful consideration.

*Fungi*, the plural of *fungus*, is the name applied to a large class of flowerless plants, of which the toadstools are the most conspicuous and familiar examples. The group is very low, if not the lowest, in the scale of vegetable life. Many of the fungi are exceedingly small, and can only be seen with the Compound Microscope. In some the whole plant is not more than a 30,000th of an inch in length! Many of the diseases of an epidemic nature among both animals and plants, are caused by minute fungi; but before speaking of these we will endeavor to give a general idea of this peculiar group, and show how they differ from other plants.

Unlike ordinary plants, fungi have no leaves, stems, roots, flowers, or seeds. Their structure is of the very simplest, being entirely *cellular*, that

Fig. 2.—BREAD MOULD (*Mucor stolonifer*).

is, made up of little cells or sacs. Fungi thrive best in warm and moist places. A ready way to get some specimens for study, is to place a piece of bread or cake where it may be kept warm and moist. In the wet weather of summer the housewife can many times provide the desired fungi in the form of *mould*, of which many kinds develop on various foods with surprising rapidity. They by no means confine themselves to articles of food; while spending a summer on the sea shore, at the end of a week of very warm and wet weather, we took the Sunday suit from the closet, and found it covered from top to toe with fine specimens of moulds—even the inside of the boots were blue with a forest of fungi. No doubt many readers have had an experience very similar to this.

When the mould first appears upon bread, it consists of a number of very minute threads, or filaments, much resembling a spider's web, which extend over and through the bread. These filaments increase in number until the whole surface is covered with a white cottony coating. Each thread consists of long slender tubes closed and joined end to end. These are the cells, and are filled with the matter which has been absorbed from the substance upon which the fungus grows. The growth of a fungus in size is the simple increase in size and number of the cells which compose it. These threads, composed of rows of cells, are called *mycelium* (from the Greek word for fungus), and they answer to the roots of higher plants in that they take up the nourishment for the growth of the plant.

Like all other living things a fungus provides for the reproduction of its kind, and in this respect it outdoes all other forms of life, both in extent and multiplicity of methods. As the formation of *seed* is the end and aim of flowering plants, so the production of *spores* is the final stage in the life of a fungus. Seeds and spores are for the same end, but in structure they are widely different. A seed contains a little plant (*embryo*) already formed within the protecting seed-coats, while a spore is a

Fig. 3.—BLUE AND CAKE MOULD.

simple cell, with a thick cell-wall, enclosing a mass of homogenous matter called *protoplasm*. In germination the seed develops the young plantlet; the spore sends out a long and delicate filament.

To point out the difference between the spore and the seed, the two are shown in cross section in fig. 1, the spore *a* being magnified several hundred times. The spore is alike throughout, while in the seed, *b*, there is a little plant, *c*, enclosed by the seed coats. At *d* is shown the process of germination of a spore, and *e* gives the germinating plantlet of the seed. In bread-mould small stalks will rise in a short time from the cobwebby mass, and as they grow their upper ends will gradually increase in size and become dark colored. In these enlarged tips the spores are formed, and when ripe, burst through the covering and are carried away by any passing breath of wind, to form another crop of mould on some bread or other nourishing substance.

Figure 2 shows one kind of bread mould, (*Mucor stolonifer*). It will be seen that the "roots," *a*, are separated from the bread. The capsule, *b*, is ripe, and the spores are being discharged. The oldest plant is at the left, and from it a filament has grown out, fallen to the ground at *c*, and formed a new plant, which, in turn, has given rise to another at *d*. This *mucor* is sometimes called the "strawberry mould," because it forms new plants by "runners," much after the way of the strawberry. In the common blue mould which grows very luxuriantly on many articles, especially cheese, we have the spores borne naked in rows on branches which are quite regularly disposed near the tip of the stalk which bears them. It forms a denser coat of threads, and the spore-bearing stalks are much shorter and more thickly set than in the mucors. It forms a thick and even crust, and when the blue spores are ripe the characteristic color is manifest. It is shown on the left hand in fig. 3. When seen under the microscope a single head of spores resembles an artist's brush or pencil, hence its scientific name (*Penicillium crustaceum*). The "cake mould" usually discloses itself in circular spots on cakes, preserves, and other

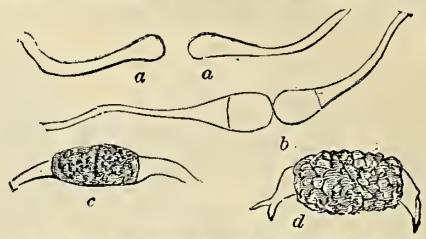


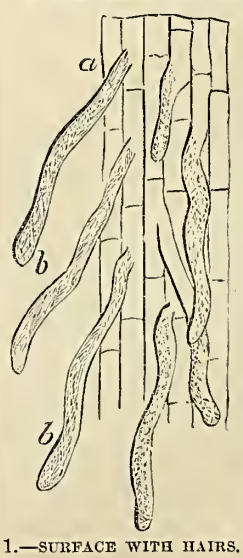

Fig. 4.—FORMATION OF SEXUAL SPORE.

like foods containing "sweetening." The mycelium is of the ordinary kind, and the spores are arranged in rows about a globular head. It is the most beautiful of them all, the spores being spheres and regularly disposed. It is known in science as *Eurotium* (*Aspergillus*) *glaucus*, and is shown on the right in fig. 3, with its mycelium intertwined, as is often the case, with that of the blue mould.

All these spores thus far described, are formed by a simple cutting off, or dividing up, of the fungus plant, and may be compared to the bulbs of "top onions," bulblets of the Tiger-lily, and some other flowering plants. All such methods of reproduction are called non-sexual. The sexual organs of flowering plants are the stamens (male) and pistils (female) of the flower, and a seed is produced only by united action of these two organs. In fungi, something similar, though more simple, occurs, the result of which is a spore, which so far as it is produced by the action of two different parts, more nearly resembles a seed than does the kind first described. This spore is produced by the union of the contents of two cells to form a new one, which is thereby specially endowed with vitality and capable, under favorable conditions, of forming a new plant. In figure 4 is shown a magnified view of this sexual process in the bread mould. The tips of two threads swell, *a*, *a*, come together, *b*, the walls where they are in contact break away, and the contents of the large cell at the end of each thread mingle, as shown at *c*. A dark heavy covering is soon developed, the attached threads wither away, and a *sexual* spore, *d*, is produced. These spores serve to keep the species over the winter or other trying times. The small, delicate, non-sexual spores, which are produced with such rapidity and in such great abundance, are for the rapid propagation of the fungus when circumstances are favorable.

## Some Notions about Transplanting.

In this month late cabbages, celery, and many other plants in the Kitchen Garden, and China Asters and other annuals in the Flower Garden are taken from the seed beds and set where they are to complete their growth—are transplanted. In transplanting, some persons make frequent failures, while others will make every plant grow. This is ascribed to "luck," while really the difference in the two cases is due to the fact that the one does all that is possible to prevent success, and the other, perhaps without knowing it, observes all the requirements of the plant, and his "luck" is simply due to this. Growing plants require that large




1.—SURFACE WITH HAIRS.

quantities of water be absorbed by the roots, and raised to the leaves, where, having served its purpose, it passes off into the atmosphere as a vapor. If this supply of water is shut off, even for a very short time, vegetation is interrupted, the leaves wilt, and the plant droops, and in time dies. The amount of water *transpired* by the plant depends mainly upon the amount of absorbing root surface, supply of water, the extent and nature of leaf surface exposed, and the state of the atmosphere. In order to expose a large surface to the moist earth, roots are provided with a multitude of long slender outgrowths called *root-hairs*. These hairs are found only on the younger roots, and are so small as to require a microscope to see them. A small portion of the surface of a young root is shown in figure 1, with its root-hairs, *a*, *b*, *b*, as seen with a microscope. These hairs work their way among the particles of the soil, and cling to them so closely that they will usually break away from the root before they will separate from the soil. Figure 2, *a* and *b*, shows the tips of two of these hairs, very highly magnified, with the grains of soil clinging closely to their surface. As the absorbing surface of a plant consists largely of these tender and minute structures, it is evident that in transplanting, they should be preserved as far as possible. In order to do this, the young rootlets, or minute divisions of the roots must not be destroyed by breakage or by exposure to the drying air. If it is necessary that, in transplanting, the soil should be removed, it is best that the roots should be kept moist, so that when placed in moist earth they may soon get to work and send out new root-hairs. At the best, the capacity of the roots to supply the plant with moisture will be greatly reduced, therefore, in transplanting large plants, trees, etc., the extent of the foliage should be reduced also.

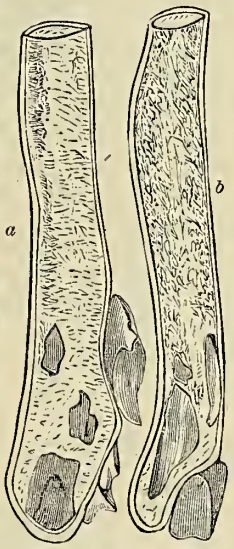


Fig. 2.—ROOT HAIRS HIGHLY MAGNIFIED.

The soil into which the plants are placed should be moist, but not a mud—and the particles brought close to the roots by gentle pressure. Transplanting is most successful when done in moist and cloudy weather, as this will diminish the amount of evaporation, and with delicate plants, shading for a few days will greatly aid them.

**Wire Pea Trellises.**—This item was overlooked earlier, and we give it now, that it may be on record, in order that those who do not remember such things may "stick a pin here" for future reference. In May last we gave M. Z. Mills, Jr.'s, method of supporting peas by means of a wire trellis, instead of "brushing" them. Posts 6 inches through are put at the ends of the rows, and No. 18 galvanized wire is stretched from one post to the other—two wires, separated by the thickness of the post, every 8 or 10 inches. We tried this last year on one row of peas, and it answered so well that this year it is used for all our peas, thus avoiding the great trouble of getting brush. Our rows are 200 feet long, and we use, at every 15 feet, laths or other stakes to prevent sagging; a small staple, or even a double-pointed tack, driven to straddle the wire and into the stake, answers every purpose. There seems to be no good reason why the wire should not answer indefinitely. Success depends upon putting up the first, or lowest wire, in time, before the vines get so large as to fall over, and in having the other wires near enough together, and in place early enough, to afford the needed support.

**A Canker-Worm Guard.**—It is gratifying to come across now and then a sensible man—one who, when he finds himself in error, owns up his mistake without reservation. A few years ago we made a notice of a device from New Haven, Conn., where they know the Canker-worm. This was a band of vulcanized rubber in which were several rows of pins. The band had only to be tacked around the tree, the "worms" could not get beyond the pins, and "there you were." Last year a gentleman in Methuen, Mass., sent us a similar thing, but instead of pins he had wires, such as are used in cards for carding wool, etc. He was very enthusiastic, was sure it would work, and was in doubt whether he should offer it for sale, so that it could be used this past spring, or to try it first. A short time ago we had a letter announcing that a trial of "that contrivance of mine * * * has proved a total failure, the moth climbs over it 'as easy as rolling off a log.' I have used printers' ink on my trees, and am guiltless of sending out another humbug into the world, upon its theoretical merits, as I was at one time strongly tempted to do."—Good! That is fair and square—besides, he heartily thanks us for our advice, which may be condensed into "Go slow."

## Why Ordinary Fruits Are Often Sent Out as Marvels.

BY E. P. ROE.

Every year the public is disappointed in regard to some new fruit, of which we are led to expect wonderful things, from the unstinted praise and unlimited claims with which it is started off on its brief career. As a rule, we do not think this fact results from any wish or effort to impose on the public poor or second-rate varieties, but rather from a defective acquaintance with the kinds already in cultivation. A person who cultivates but comparatively few varieties, may find a seedling, or possibly a good old variety, that he has never seen and perhaps never heard of, and he is greatly struck with its merits. He takes it up, puts it in a favorable place, and gives it extra care. The old varieties may even be neglected in the enthusiasm for the plausible stranger. Of course the highly petted plants respond. I can take the "Highland Hardy" Raspberry, or "Wilson" Strawberry, and, by a course of high culture, make them astonish the natives, and seem to the uninitiated like new varieties.

Neighbors and friends are called in to see the prodigy. They in most cases have had even less experience than the originator or discoverer, and they very honestly say that they have never seen anything so fine. Thus hopes and reputation grow apace. By and by the petted child is sent, with a great flourish of trumpets, out into the rough and tumble of the world, and is compelled to endure any amount of what a friend of mine terms "wholesome neglect." It is also placed side by side with the great standard varieties that made their reputation years ago. After one year's fruiting the sanguine purchaser shrugs his shoulders over the new comer. After the second year, he may wrathfully dig it out, saying that "the best kinds are good enough for him, and that he has no land or time for third-rate kinds." Or he may find that the new seedling, of which he expected so much, so closely resembles some variety that he already has, that he cannot tell them apart. As a case in point, I could never distinguish between the "Romeyn Seedling" Strawberry and the "Triomphe de Gand." In Raspberries, I fear we are about to have a still more marked example. Good judges thought the "Amazon" identical with the "Belle de Fontenay," and now truth compels me to say that on my place, the "Henrietta" so nearly resembles the "Belle de Fontenay," that I can not tell them apart. I do not say that it is not a new seedling, but its parentage is very plain, and if grown side by side, I think it will be difficult to distinguish the two.

From the nature of things, we must always expect these disappointments. It may seem a harsh and ungracious task to blight with criticism the prospects of some new and greatly praised variety, and yet it is clearly one's duty to state plain unvarnished truth about these claimants of popular favor. In my catalogue I have tried to name the faults as well as the good qualities of my own seedlings, and of those growing them I ask only that they give *both sides* of the question a fair statement.

A wide acquaintance with the fruits already in cultivation is perhaps the best preventive of the evil referred to. If a man knows well the characteristics of fruits already before the public, he will not send out varieties so inferior to, or so closely resembling them, that no advantage is gained. Last spring I started a specimen strawberry bed. It contains fifty rows, and each row is a different variety, labelled in large letters. Any one can walk down this bed and compare the foliage, fruit, and general merit of all these kinds at a glance. They are all grown under precisely the same conditions, no more favor being shown to one variety than to another. By another year I expect to have a hundred or more varieties growing side by side. It is my intention to start this fall similar specimen beds of raspberries, and all the other small fruits. Every thing new that comes out will have to pass the ordeal of growing side by side with all the varieties that are not utterly obsolete. Then if it ranks with the best, or above them all, it is entitled to wear a crown. My own seedlings will be subjected to the same test, and then people can see for themselves how far they fall short, and can state the facts in the *American Agriculturist*.

# THE HOUSEHOLD.

☞ *For other Household Items see "Basket" pages.*

## Home Topics.

BY FAITH ROCHESTER.

### Getting Along Together.

It is a common saying that "no house is large enough for two families." This is not because of any particular conditions of space, but because human nature is as it is. But the old general rule has been so often disproved in particular cases, that no one need despair of human nature. Theoretically it is a simple matter. Only keep the golden rule; that is all. But one who imagines that this is an easy thing to do in practice, knows little of human nature at its present stage of development. Just "put yourself in his place" in all your dealings with your neighbor. Consider how it would seem with "the boot on the other foot," or if it was your neighbor's ox that gored your cow, or *vice versa*. Yes, the theory is simple, and why do neighbors quarrel at all, or find it difficult to live in close relations? Only because your neighbor forgets to return the borrowed newspaper, or hammer, or pail, and your chickens scratch up your neighbor's corn or flower seeds, and neither of you can bear such griefs as these with fortitude. Deal with each other frankly and kindly, with forbearance and soft answers, and all these difficulties can be easily adjusted. But if each one says "I won't until he does," or "when he is ready to deal fairly, he will find me ready to meet him," a friendly settlement will be delayed, and all such delays are dangerous. It may be according to business practices, but it is not in accordance with the precepts of Christianity, for neighbors to rejoice in the legal hold one has upon the other, whereby he can compel the other to his own terms, each looking wholly for his own rights in every transaction. A spirit of conformity, of willingness to do one's share for the general pleasure, of unwillingness to stand in the way of others, makes a good neighbor. If we can only learn to live together without giving and taking offense at trifles, giving due attention to all the little kindnesses that add greatly to the sum of human happiness, we can learn to coöperate as neighbors in many ways that will greatly increase the general thrift of our neighborhood.

### A Good Story for Little Children, and for Children of a Larger Growth.

In some child's paper, there was a little story many years ago, which impressed me as an unusually good illustration of the Christian principle of loving our neighbors as ourselves. It has been of great use to me in training my little family. I have only to mention "Addie and Rose," and it is better than any sermon or lecture on behavior. The hint is understood every time, though not always as promptly and fully acted upon as I could wish.

Sometimes I cannot understand their little quarrels, and do not know what course to take, while each insists that the other is most to blame. I say "I don't know just what to do now, but I know what Addie and Rose would do to end this trouble, and how they would have avoided it. Do you know why they never had any difficulty in getting along together?" Yes, we all know, who have ever heard the story of "Addie and Rose." A lady (the writer of the story), who observed that these little girls always played very happily together, asked them the seeret of their agreement. "I don't know," said Rose, "unless it is because Addie always *lets* me and I always *let* Addie." Theu the lady observed that most childrens' quarrels arose from the unwilliugness of one to *let* the other do or have some thing desired. When each is willing to *let* the other, there is no tyranny aud uo slavery, but a mutual helpfulness. I have read this little story to my children many times, and it is the most pleasant as well as most speedy way to settle difficulties simply to ask, "What would Addie and Rose do in this ease?" Thanks for the little story.

"How far the little eandle throws its beams!
So shines a good deed in a naughty world."

### Providing for Winter Supplies.

At the time of my writing the preserving, and eanning, and pickling business has not begun. Iu our own gardens we have ouly Asparagus and Rhubard (or Pie-Plant) of this year's growth. I have not heard of any method of preserving asparagus for winter use, but perhaps it might be canned as well as green peas and string beans, two things very difficult to preserve by canning, I am told. Rhubarb can be dried in thin slices or strips, and it is successfully eanned, eut in transverse slices, and stewed in a little water, aud sealed up while at the boiling point. When this appears in print, strawberries will be in season. Then come currants and other fruits, small and large. In what way eau we make all these bounties of Providence *serve us best?* I think the question is an important one, and not suffieiently cousidered by house-keepers in general. Articles of food which might nourish the body, as well as gratify the taste, are often preserved in such a mauner as to prove a positive injury to those who use them. To put them up in the old-fashioned way of preserving—a pound of sugar to a pound of fruit—is to get them into sueh shape that weak stomachs ean not take them without pain, and children suffer many an ache on their account. The same may be said of sweet pickles. Those house-keepers who must have everything that is "nice" will make sweet piekles, and judged from a common standpoint, they make a very pretty show upon the table, and the professors of "good living" pronounce them good. But there are hosts of good house-keepers now who have eeased to make them. As for me, I never made a piekle, nor a mince-pie, nor a regulation fruit-cake, nor a sausage, nor a fried-cake. I never expeet to make one of these things. It is not in our line to make them or eat them, and I know very well that none of my family would thank me for setting them upon the family table and expecting them to partake, "asking no questions for conscience sake." I don't say that we never taste these things at our friends' tables, but we do not believe in them as wholesome food, and think ourselves better provided for without sueh things in the house than with them. But those who expect to live on fat pork daily through the winter, perhaps had better provide a stoek of pickles as an antidote to grease. We shall have apples, eanned tomatoes, and fruit sauec enough to supply the acid needed in our diet. Of strawberries, I think we will make

STRAWBERRY JAM, by Marion Harland's reeipe. For every pound of fruit, three-quarters of a pound of sugar. One pint of red eurrant juice to every four pounds of strawberries. Boil the juice of the currants with the strawberries, half an hour, stirring all the time. Add the sugar, and boil up rapidly nearly half an hour, skimming carefully. Put up in small jars, bowls, or glasses, as jam keeps much better if not disturbed. Currant juice improves the flavor, but it may be omitted.

CURRANT JAM is easily and cheaply made, and fills a very important office, I have found, in making up lunches for school and office. It is customary to use pound for pound of sugar and fruit, in making jam, but three-quarters of a pound of sugar to a pound of currants is sufficient if the fruit is well boiled. If the jam is stored in sealed cans, sugar is not necessary, and one may swecten to taste, but iu eommon bowls use sufficient sugar to keep.

CURRANT JELLY.—Last year I filled twenty-five tumblers with eurrant jelly, at a cost of only seven eents a eup. This year I hope to double the quantity, the jelly is so uiee and wholesome and convenient for use, as well as cheap. I used half a bushel of excellent red eurrants, freshly ripened. They were uot stripped from the stems, but were steamed in a stone jar set inside a kettle of boiling water until the juice ran out freely, then squeezed through a jelly-bag. From half a bushel I had ten and a half pints. To each pint of juice allow a scant pound of sugar. Let the juice boil alone for twenty minutes. In the meantime be heating your sugar in the oven on plates. Add it hot to the boiling juice, and stir briskly. It is done as soon as the sugar is all dissolved, and further boiling does uot improve it. Remove it immediately from the fire and pour it, scalding hot, into jelly glasses just rolled in hot water. When cold and firm, lay a pieee of tissue paper cut to fit the glass elose upon the jelly, and paste a thick paper over the glass. If you use the eurrants when first ripened, I do not see how you eau fail of success by following these directions. Dead ripe fruit of any kind has lost much of its jelly prineiple.

I have previously written fully about jelly making. The recipe is about the same thing for jelly from all kinds of fruit. In making plum jelly, do uot squeeze the fruit, but let the steamed plums drain through a colander and use only the juiee so obtained for jelly, and very beautiful it is! Theu rub the pulp through the eolander to remove the skins and stoues, aud make marmalade of it. From one heaping gallon jar of small wild plums I made three small tumblers of jelly and three of marmalade. Plums and erab-apples do not need quite as much sugar as eurrants and wild grapes. Brandied tissue paper is often recommeuded, but if you eare to get the delieate flavor of each kind of fruit made into jelly, do not use it. Tomatoes and sweet corn follow right along, but we need not at preseut discuss modes of preserving them for wiuter use.

### Thorough Cooking.

It is one of the most common mistakes of the cook to give too little time to the eooking of meat and vegetables. She is careless about getting them over the fire in season, and to make up for the delay, she attempts to "rush things" by using a very hot fire, spoiling the food by too furious boiling or baking. Hard boiling toughens the fiber of meat, and spoils the texture of vegetables, but a long steady boiling heat gradually softens or makes tender the toughest fibers. Many persons suppose that certain articles of food do not agree with them, when the whole difficulty arises from the imperfect manner in which they are prepared. Some vegetables are thought to be especially provocative of flatulence, but a more thorough eooking usually remedies that evil. Flatuleuce has other causes, as over-eatiug, or too great a proportion of sugar in the diet, but those articles of food whieh are usually assoeiated with the evil may be robbed of these terrors by a more prolonged cooking. Cook dry beans several hours, a gentle but steady simmering—five hours are not too many, even after au all night soaking. Dry peas ueed the same treatment. Vegetables need more and more time as they grow older. By spring, rutabagas need eooking almost half a day, and onions should be boiled an hour or more. Salsify aud parsnips, especially the former, need more than the twenty minutes boiling usually prescribed for them.

### Mush; Oatmeal.

Mush of all kinds needs more boiling than cooks usually give it. We should drop the name of "hasty" pudding, for in this case "haste makes waste," as the full nourishment of corn meal, even the finest, is not brought out by the very quick cooking usually given. It is wonderful how oatmeal improves with long boiling or steaming. There is a difference in the quality. That which is fine or floury, needs less eooking and is palatable with half an hour's boiling. But the best oatmeal—that which is coarser and firmer and safer to buy in large quantities, as it keeps better—needs two hours steady boiling, and three or four hours will not be in vain, if the mush is not scorched. To prevent this, put the oatmeal with four times its bulk of cold water and a little salt, in a tin pail or stone jar inside a kettle of cold or luke-warm water. It can be cooked safely in a steamer or steam-cooker, or farina kettle. After it comes to boiling it should boil for two hours. It can be cooked more quickly if soaked over night. Oatmeal mush is such a favorite dish with us just now, that a day's supply is put upon the stove to cook, uearly every morning as soon as the fire is built, and it sometimes happeus, that one or the other of the family relishes it so much, as to eat nothing but oatmeal and milk, for a breakfast or supper. Sinee we have learned to eook it so long, we have forgotten to use sugar on it, except as there is sugar with our berries, or other sauce eaten with it. It is very nice cooked with milk—as I have previously told—half milk and half water. A good spriukling of raisius boiled in graham or oatmeal mush, makes a very pleasant variety.

### Bathing the Baby.

In various "exchanges," one now sees a short article on the care of iufants, whieh says, among other things, that babies should be washed in eold water twice a day, and oftener in hot weather. This article was probably written by some masculine writer, who knows extremely little about babies, and it is seized upon by male editors, and put into their household eolumns as a very wise bit of advice for ignoraut mothers. But few mothers are so ignorant as to take sueh advice. Instinct teaches them better. A well-dressed and well-fed baby needs a full bath only two or three times a week in eold weather, and only once a day in warm weather. Warm baths are weakening, and eold baths make too great a demand upon the constitutional vigor, and are always injurious, unless there is pleasure in them, and a quiek and complete reaction or warm glow of the skin. The water used should be neither cold, nor decidedly warm, but comfortably cool or even lukewarm. Try it by your elbow to see whether it is too warm or too cool. The artiele mentioued, says nothing about the conditions under which a bath should be taken, but it should never be immediately following a meal, or when the child is eold, unless it be a warm bath used as a medicine. No matter if the little oue is in a perspiratiou wheu the bath is given, if neither the room nor the water chills it.

## Window Screens and Awnings.

In our intensely warm summers—not the less warm on our northern borders, while they last,

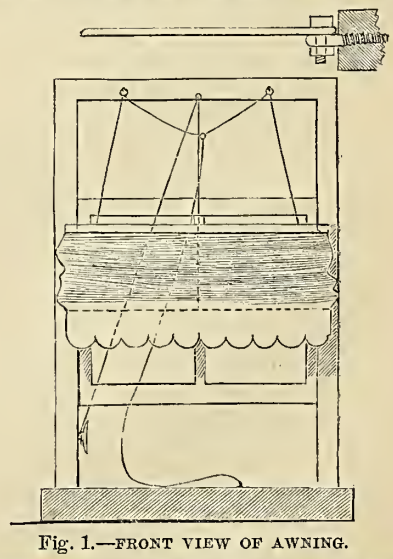


Fig. 1.—FRONT VIEW OF AWNING.

than elsewhere—provision must be made for shade. Hence no house in this country can be regarded as appropriately designed unless it has broad and abundant verandas or piazzas. Windows in the

upper stories, and not otherwise proteeted, must have separate shades or sereens. The usual inside muslin screen mounted on rollers, affords shade, but it exeludes air. Out-side sereens, or awnings, are better than these, as they shade the room and allow the lower part of the window to be open. These awnings, attaehed to the window - frame above, and below to an iron rod bent twiee at right angles, and projeeting outward, are vastly more pleasant than any inside arrangement eau be. Besides this, they give the house an airy, summery appearanee, a point not to be despised, as it is well to have the house look comfortable as well as be so. Still awnings of this kind have the disadvantage that they prevent all proper circulation of air through the upper part of the window.

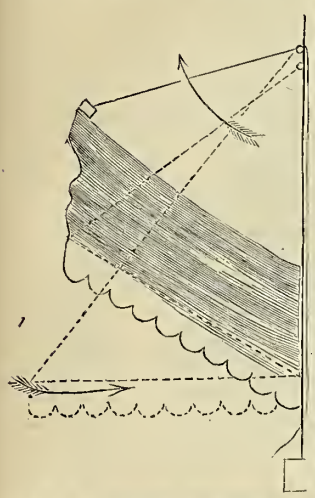


Fig. 2.—AWNING, SIDE-VIEW.

A subseriber and physieian in Philadelphia sends us a plan of an arrangement whieh he has adopted to overcome this defeet; he has so arranged, that the awning can be let down from the top, as shown in figure 2. He has the upper edge of the eanvas fastened to a light wooden bar, whieh is drawn up by a small cord that passes over a small pulley at the top of the window casing. It is let down by loosening the fastening of the eord, when the top of the awning falls of its own weight. Figure 1 shows a front view of this same arrangement. An easy way of seeuring the hinge motion at the lower fastening of the awning to the wall, is shown at the top of figure 1, where the eye of the end of the iron frame and that of the screw are held side by side by a small holt. He thinks a better plan is the one given in figure 3, where there is an iron frame for the top of the awning similar to the one at the bottom.

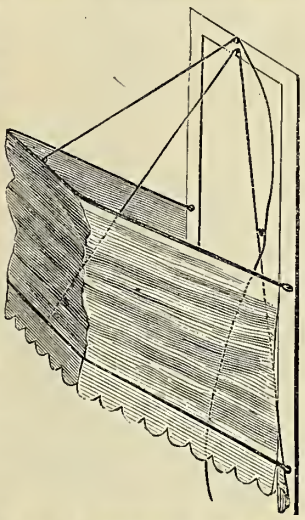


Fig. 3.—IMPROVED AWNING.

**The Buffalo Moth.**—"Mrs. T.M.J." It is our intention to give engravings of this pest, so destructive to carpets, so soon as we can get the insect in all its stages. The perfeet inseet is not, like the clothes-moth, one of the Butterfly Family, with soft, downy, or sealy wings, but a regular beetle, a hard-shelled fellow. One housekeeper sent specimens from Poughkeepsie, N. Y., of a little beetle supposed to be the perfect state of the Buffalo-moth. The insect was one of the Lady-birds, a most useful little beetle, and not eoncerned with the earpet eater. The beetle of the Buffalo-moth is dark gray in color, and very modest in appearanee. When the moths, the larva or grub state, in which the mischief is done, are known to be under the carpet—they usually keep along the edges—wet a sheet or other large cloth, and have a number of *hot* flat-irons. Lay the wet cloth down along the edges of the earpet, and use the irons freely, making an abundanee of hot steam to penetrate the earpet. Fortunately we have not had oeeasion to test this, but we know those who have done so, and found complete sueeess. You and others who have not sueeeeded, must have failed through not having the flat-irons hot enough, and in suffieient numbers. Rightly done it *must* kill.

## Stoves and Stove-Pipes.

In the Northern States, at least, whoever takes down the stoves used for warming the rooms before June 10th, is sure to regret it. Indeed, our climate is so uncertain, that it is hardly safe to be without the ability to warm at least one room in the house in any month of the year. The taking down of the stoves at the first of May eleaning is a mistake that wise persons do not make more than onee. The putting up of stoves in autumn is usually a vexatious business, but mueh depends upon how the stoves are taken down. A eorrespondent in Attleborough, Mass., writes: "It is quite a serious matter for those obliged to attend to it personally, to get, in the fall, the stoves and pipe into a respectable condition for winter use. The way I have followed of late will be found a very easy way of doiug a thing that was formerly the oeeasion of mueh vexation and trouble." Then follows "the way," whieh is:

"When sheet-iron stoves and pipe are taken down in the spring, first elean all soot and ashes from every part as eompletely as possible, and have them perfectly dry. Dip a soft eotton or woollen cloth in kerosene oil, and ruh over the whole outside surfaee; then, with another dry eloth, wipe over the articles again lightly and evenly; then wrap up eaeh piece in newspapers, to keep from dust and air, and put away in a *dry* plaee for the season. Iu the fall, all that they will need to have them look niee, is to rub them over with a dry eloth. All east-iron stoves are to be treated in the same manner, only add a little dry black-lead or stove-polish to the kerosene oil, and use a small paint-brush with which to apply it. Paint all over outside with the mixture, giving a light even eoat, then eover up with newspapers, and set away in a *dry* place. In the fall, all that the stoves will need is a light polishing with a stiff stove-hrush, and, with a little brushing oeeasionally, they will look niee all winter. Stoves and pipe treated in the above manner, will not *rust* during the summer.

## Household Hints and Helps.

BUFFALO GNATS.—The inseets of whieh a correspondent in Missouri eomplains as pestering him and his neighbors, are evidently what is known as the "Buffalo Gnat." The inseet is a near relative of the mosquito, and, like it, breeds in the water. So far as known the preventives used for the mosquito, are the only ones available for this; the use of fine wire-gauze sereens at the windows and doors. If there are stagnant pools in the vieinity, these should, if possible, be filled up or otherwise obliterated.

ANILINE DYES.—"Mrs. S. N.," Fairfield Co., Conn. Others besides yourself have asked similar questions, and it has long been on our memorandum of thiugs to be done. The matter is one rather difficult to present to those who have not a fair knowledge of chemistry. Still we will try what may be done, at least so mueh as will meet the points suggested by your pleasant letter.

PRESERVING ASPARAGUS.—"Mrs. E. A. K.," St Louis, Mo. We have never seen Asparagus preserved in any other manner than in sealed tin eans, and suppose that like peas, corn, and some others, that it ean only be sueeessfully treated by long boiling in elosely sealed cans. We do not think that any proeess that requires the soldering of eans practieable in the household. Hence we do not give reeipes that need the use of the soldering iron.

COVERING AN UMBRELLA.—A correspondent at Monroe, Mich., wishes help in covering an umbrella. She puts the problem thus: Knowing the numher and length of the ribs and braees, what is the method of eutting the covering? Who will help her? If the diffienlty of covering an umbrella, is at all proportioned to that of *rcovering* the same, we fear there will be but few responses.

CREOLE MARY'S PUDDING SAUCE.—"Mrs. M. W. M.," sends from Loudon Co., Tenn., the following method of making a sauee, whieh she says is a great improvement upon the ordinary "hard sauee" of butter and sugar only. A teaeup of sugar, and half that quantity of butter, are beaten and ereamed together. The white and yolk of one egg are well beaten separately, and stirred into the butter and sugar; season with nutmeg.

SILVER WARE.—"Mrs. S. M. W." It makes no difference how carefully put away, silver and plated ware that is seldom used, will beeome tarnished in time, the more rapidly when eoal is used as a fuel, as that supplies the atmosphere with suffieient sulphur, to aet upon the surfaee of the wares. We have somewhere seen it stated, that a dealer in silver was troubled with the rapid tarnishing of the artieles in his show window, and after trying several coatings without sueeess, hit upon eovering the wares with collodion. The articles were first warmed, and then by means of a very soft brush, he gave them a coating of eollodion made thin with aleohol. This dries at onee, and makes a very thin transparent, and invisible film, that eompletely proteets the silver. Drug stores in the large plaees have collodion in bulk, this comes much cheaper than that put up in hottles as "Liquid Court Plaster," "Liquid Cutiele," ete.

OAT MEAL CRACKERS.—"Miss A. R.," wishes some one would eontribute a reeipe for making such oat-meal eraekers as are sold at the stores.

CLOTHES MOTHS.—"Mrs. C. S. R." As we have often stated, woollen elothes and furs, put up free from moths and their eggs, in some tight box—so tight that there is no eraek or erevice or hole large enough for a knitting needle to pass through, will come out all right next fall. These two things are to be observed: see that there are no moths *in* the artieles, and put them up so that none can *get in*. We have lately noticed in some of the city stores "Moth Barrels for Sale." These are exeeedingly neat and handsome little kegs or small barrels, made of fancy wood, hut "as tight as a drum." The articles being stored in these, and the head put in plaee, are not only moth-tight, but probably air-tight. This is a modifieatiou of the old method of paeking woollens and furs in a whiskey barrel. There is no virtue in the whiskey, but a great deal in the tightuess of the barrel—the only "tightness" due to whiskey that is to be commended.

RECIPES FROM OHIO.—"Mrs. E. T. K.," of Xenia, O., iu sending the following recipes, aeeompanies them by a letter, in whieh she says: "We have dear ones in the 'far West' who would the more heartily welcome your paper to their fireside for our eontributions."—This is a pleasant thought, and should eneourage our house-keeping friends to send their contribntions, that, through the medium of the *American Agriculturist*, they may meet the eye of friends at a distanee.

1. *Grandma's Quick Cake.*—Two eggs, one cup sugar, one tahlespoonful butter, one-third cup milk or cream, one cup flour, one heaping spoonful baking powder; mix the baking powder in the flour, stir all together briskly a few minutes, bake in two sheets in a hot oven. This eake can be prepared aud ready for the table in twenty minutes.

2. *Graham Pudding.*—To three pints of boiling water add one teaspoonful salt, and stir in graham flour until you have a thin mush; have ready one well beaten egg, stirred into one-third cup eream, add this, boil a few minutes, mould in small saueers. Serve with sugar and cream.

3. *Breakfast Cakes.*—Prepare, the day hefore it is wanted, some soft corn-meal mush; if too hard, thin with warm water to the thiekness of paneakes, add graham flour, enough to make it drop from a spoon; bake on buttered pans. A good substitute for fried potatoes.

4. *Custard, with Frosting.*—Yolks of two eggs, well beaten, two tablespoonfuls sugar, two-thirds pint rieh milk or cream, mix, and while baking whip the whites, add a teaspoonful sugar; when well done add the frosting and brown lightly.

# BOYS & GIRLS' COLUMNS.

## The Doctor's Talks.

In our talks about the "Properties of Matter" last month we did not get through with them all. It did not need much illustration to show that *size* was a property or quality that belonged to all matter. Then there was *Impenetrability*, a long word to express the fact that no two *bodies*, or portions of matter could occupy the same space at the same time. Then there came the fact that matter can be divided—*divisibility* is the name for this property, and it was stated that there could he no portion of matter so small but we could not conceive that it may be smaller. Most of the illustrations showing the great extent to which matter can be divided, are from the solution of different substances in water. One of the bitterest of known things is

THE POISON, STRYCHNINE.

This is a white substance, looking much like salt; it is extracted from *Nux-vomica*, which is the seed of a small tree that grows in the East Indies. It is found that a single grain of this, dissolved in 1,750,000 grains of water, will make that water distinctly bitter to the taste, and we may infer that every grain of that water contains the 1,750,000th of a grain of Strychnine. Some of the newly discovered coloring substances will color a large body of water, showing a still greater divisibility than this. You have all blown soap-bubbles. I have often thought what a wonder a soap-bubble would be, if it could be produced only with great difficulty by means of costly apparatus in the hands of a person of great skill. But a clay pipe that costs hut a cent, and a bit of soap, allows every child to produce one of the most wonderful and beautiful things in the world. Yes,

EVERY SOAP-BUBBLE IS A WONDER.

As you hlow, the bubble grows larger and larger; then come the colors, the tints of the rainbow, brighter and brighter; you will have them brighter and your bubble larger still—paff! where is the beautiful thing—surely not a "joy forever." Well, so great a philosopher as Newton, found not only pleasure, but instruction in a soap-bubble. He calculated—and if he was wrong, we can not prove it—that the thickness (or *thinness* (?) of the film of the bubble just at the time of breaking, is the 2,600,000th of an inch! But the bubble is not all water. Every particle of the bubble contains some soap, one part of soap in one hundred parts of water will make good bubbles, hence it follows that in every 2,600,000th of a cubic inch of film, one hundredth of it must be soap. This takes us into big figures, as one hundredth of the 2,600,000th of a cubic inch is $1/17{,}576{,}000{,}000{,}000$ trillionth of a cubic inch. More than that, every particle of this soap consists of four different elements, and if we should undertake to show how much of each of these was present in each 2,600,000th of our cubic inch of film, we should get into figures quite beyond our conception—into the trillionths.

HOW MUCH IS A TRILLIONTH?

To put the figures upon paper does not give any definite idea of the immensity of the sum. One writer tries to convey an idea of a trillionth in this way. Taking the accepted date of the creation of Adam, and supposing him to have counted one each second of time, and to have kept at it up to the present date (no allowance for sleep, sickness, or Sundays), he would not have made a large hole in a trillion; suppose he had had Eve to help him, and the two had gone on counting one each second, they would be counting now with a fair prospect of having told off their trillion in the year 11800, or 10,000 years to come.—A trillion is a good many! But this illustration is only to show how excessively divided the soap must be in the 2,600,000th of a cubic inch of soap-bubble film. We have dwelt quite long enough on this property of matter. The next we notice is *Porosity*. You know that a piece of bread or a brick is porous, that is, minute openings, or "pores," are found all through these and many other substances, but this is not the kind of porosity I would talk about, and this brings us to the interior structure of matter. Some illustrations of the extent to which matter may be divided have been given, but it is now generally believed by philosophers that however much we may divide matter, there is a point beyond which division is no longer possible, and that all matter is made up of particles so small that no human eye, with the most powerful of microscopes, has ever seen them, yet there seems to be no doubt that such exist, and they

ARE CALLED ATOMS.

This word *atom* is from the Greek words, meaning that which can not he cut, or divided—the ultimate particles of matter. How exceedingly minute these must be what I have said on divisibility shows. Another term is also used in speaking of matter, *molecule*, meaning a tiny mass. A molecule may consist of two or more atoms—thus a molecule of salt consists of an atom each of chlorine and sodium. While it can not be proved, it is supposed that the atoms of matter are minute globes or spheres, and that these do not quite touch one another, but have spaces between them. This is inferred from other properties of matter, but more especially from

COMPRESSIBILITY.

There is no form of matter, so far as known, that can not be made, by pressure, to take up less space than at first, and we shall see by and by that there are other reasons for thinking that there is space between the atoms of all matter, however solid it may seem to be. But I have already given you enough to think over. Do not be impatient, I shall get to the experiments in due time. I wish you to think carefully over this and the last talk, for we are now building our foundation slowly, and the structure will go up more rapidly when that is laid.

## The Fourth of July.

How many of you have asked your friends these few days past, "What are you going to do on the 4th"?—Among boys there is but one 4th, and that is the fourth day of the present month. Every boy thinks he must *do something* on the 4th, and he begins to think of it days and weeks beforehand. He must not only do something, but that something must be different from what he will or can do on other days, or other holidays. Well what *are* you intending to do? Why should you do anything on that day, any more than on the 3rd or 5th day of the month? Perhaps you would find it difficult to answer this—and in that you would not be behind many older people, who would perhaps answer; "to celebrate the day," but if asked *why* it should be celebrated, would be puzzled for an answer. It will make a good beginning for a celebration for all hands, girls as well as boys, to find out, if they do not already understand it, why this particular day is to be celebrated. No doubt that many of you, the older youngsters, know that it is the day on which the DECLARATION OF INDEPENDENCE was made. Independence of what? And why was it made? Get out your history or whatever book will tell the story, and in the cool of the morning, make these points quite clear.

Then what is the DECLARATION? This should be read on every 4th of July, at least. The reading of the DECLARATION will make a capital celebration of itself. Let the youngsters of the family, or of the neighborhood *do* that, whatever else is left undone. Then for the rest of the day, there are so many of you that we can not so well tell you what to do, as what not to do. In the first place, don't get overheated, but keep cool, and avoid whatever will make you tired and cross before night comes. Don't fire pistols, guns, or cannon, or anything of the kind. The list of so-called accidents from these is a sad one, don't add to it. Don't use firecrackers—some won't heed this. Many have saved their pocket-money to buy these snapping torments, and think there can be no sort of a 4th of July without crackers. If you have bought them, the best way is to get rid of them as soon as possible.—Don't fire them near the road to frighten horses, don't fire them anywhere near the buildings or hay or straw stacks, but go where they can do no possible harm. As to those horrors called squibs or serpents, they have caused many a death—have nothing to do with them. Do nothing that can injure person or property. Enjoy all you can in a sensible manner. Sing, shout, play games, have a pic-nic—but we were not to tell you what to do. Do nothing that will make you wish that you had left it undone, and may you all have a pleasant day, and arise refreshed on the 5th.

## The Doctor's Correspondence.

You youngsters who feel impatient that your letters are not answered "right off," "soon," "by return mail," must remember what I have already assured you more than once—that no inquiry is lost or overlooked, but there is good reason for the delay, and in time an answer will come in the paper or by mail.

THOSE LETTERS BY MAIL,

what a number there have been of late, and what an amount of time they have taken! Still I don't think it right to occupy space by a reply that interests just one person, so I answer such questions, when answerable, by mail—I say "when answerable," because many of them can not be answered by any living person. I can not now tell what these questions are, but each of you, if you do not find an answer here, or by mail, may know that you have put one of those conundrums to which there is no answer....Here is one boy who wishes to know

"ABOUT GAS AND HOW IT IS MADE."

He does not seem to know that there is a vast number of gases, all made differently, but by the next question, asking "how to make a balloon," I infer that he has in mind one of the gases used to fill balloons. In places where gas is used for lighting, the street-gas is used to fill balloons, which must be very large. To make the gas used to fill small oiled silk balloons is an expensive and dangerous process, and not to be advised for boys. Almost any ingenious boy can make and send up

A HOT-AIR BALLOON,

and I will try at another time to tell you how this is done. ... Here is Master J. W. S., who must be a new comer to our family, as he does not know that we always expect the full name. I overlook it this once. He wished to get some Chloroform to kill butterflies with, and the druggist would not let him have it. No doubt the druggist followed the law, as Chloroform, being sometimes put to improper uses, is classed among dangerous things, and not to be sold to every one. He would sell it to your father or other well known grown person, or you can go to your family physician, tell him the use to which you will put it, and, if he is a good-natured Doctor—most Doctors are good-natured—and knows you well, he will no doubt give you a prescription for it, and the druggist will then furnish it....Here is the father, "G. P.," of one of our boys who wishes to know about something that may interest the boys also: "What is meant by

THE TEMPER IN METALS?"

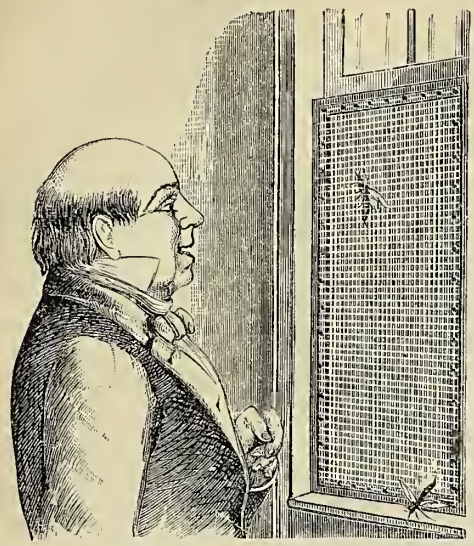
The term temper is used very loosely, but to temper a metal really means to regulate its hardness, and the "temper" of a metal refers to its hardness and elasticity. Take, for example, steel, which is the most frequently tempered. If you have a steel rod and heat it bright red, and then suddenly plunge it into water, the steel will become very hard and brittle; if the water is ice-water it will be all the harder. Such steel may be ground to a very fine edge, but if you undertake to bend it, it will break like a pipe-stem. Take a bar thus treated and made brittle, heat it red-hot, and allow it to cool slowly in the air, and it may be twisted into a knot without breaking, but if made into an edge-tool it will be so soft that it will soon become dull. Now, between these two states—very hard and brittle and very soft and yielding—there is every degree, and to bring the steel (or other metal) into the proper condition for the use to be made of it, it is to be "tempered," that is, the hard and brittle steel has its hardness reduced and it is brought to the desired hardness or "temper," and this is done entirely by peculiar methods of heating and cooling, each workman having his little trade secrets for accomplishing this. To "temper" a metal is to bring it to the hardness required for a particular purpose...."J.B.," Decorah, Iowa, has lost a Canary, a good singer, through the attacks of

LITTLE RED LICE.

He put some of these under his *American Agriculturist* Microscope, and saw what seemed like "big red crabs." He wishes to know what will get rid of these and not injure the bird. I once knew an old German who kept many Canaries, and had great success with them. He had a fine strain of capital singers, and made considerable money by raising and selling the birds. I noticed that for each breeding cage he had a piece of Canton or cotton-flannel, and this he put on the cage at night, the fuzzy side down. I asked what this was for, and he told me that the lice would gather in these pieces of flannel, and in the morning he would scald the cloths to kill the lice, dry them, and have them all ready to be put on again at night. This is very simple and easily tried. Allowing the birds to bathe frequently, and mixing a little aniseed with the gravel on the floor, are said by the books on birds to be the best preventives of lice.

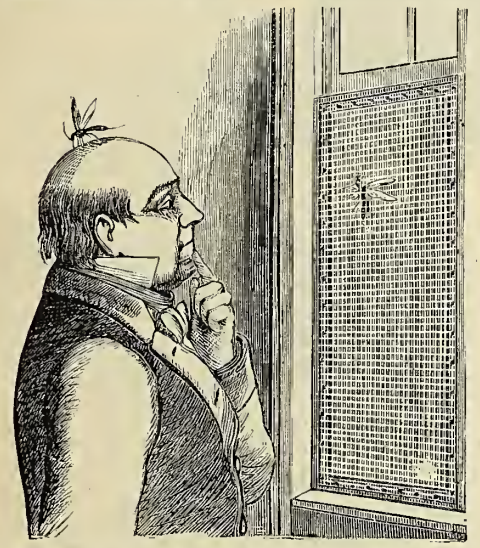
**No. 468. Illustrated Rebus.**—We have not had many rebuses of late; this, when made out, will be found to state if not a proverb, a truthful saying.

## Some Lessons in Practical Entomology.



Mr. Watchman: (Complacently). How nice it is to be secure from these fellows. An ingenious and persistent, but a poor deluded creature. He is perhaps worth watching.

Second Mosquito: (who has a "corner.") A wise (?) and thoughtful man—I think I can use him in my business.



Mr. Watchman: (thoughtfully). He is working very hard now, and I think he will get in after all.

Second Mosquito: Pretty tough work, but I agree perfectly with the rare gentleman.

Mr. Watchman: (Enviously, or at least a little *pained* at the mosquito's success). In at last! How smart he feels!! He evidently works for a purpose.

Second Mosquito:—"And so do his sisters and his cousins and his aunts."

## Our Puzzle-Box.

ABBREVIATIONS.

1. Behead and curtail (remove the first and last letter of) a precious stone and leave a domestic animal.
2. Behead and curtail a coniferous tree and leave part of a circle.
3. Behead and curtail a Turkish officer, and leave a forest tree.
4. Behead and curtail a game bird, and leave a pinch or blast.
5. Behead and curtail a motive power, and leave a beverage. Isola.

SQUARE WORDS.

1. 1. A girl's name. 2. To attract. 3. A fastening. 4. Tools. Nip.
2. 1. A shell-fish. 2. An avenue. 3. A lady's name. 4. Ground grain. Little One.

ALPHABETICAL ARITHMETIC.

Y G I) N A E M L P C ( C A A G I
A Y N
M C P M
M Y E L
M Y N L
M Y E L
Y G P C
M P P M
Y G Y

CONCEALED FLOWERS.

1. The account is now in good shape on your ledger.
2. Seth, are belladonna pellets what I need?
3. Mr. Speaker, I rise to enquire ——.
4. What is the matter, O Senator?
5. Ada, is your watch enameled?

GEOGRAPHICAL BLANKS.

(Make sense of the following sentences by filling the blanks with names of Capes.)

1. Do not —— for —— lest you should meet with ——.
2. The —— was sounded for ——. Some one would not keep——of the——which was full of——. Aredax.

REVERSED WORDS.

(Fill the blanks with words that read backwards and forwards the same.)

1. I am going,——,with my cousins——,——and,——, and with little——Smith to see the——.
2. This apple is——than that.
3. My brother——asked me to keep——about the wicked——.
4. Toads and lizards are——by some idolators.
5. The country was——as far as the——could reach.

DROP-LETTER PUZZLE.

(Every other letter is dropped, commencing with the first.)

—g—i—u—t—r—i—t—e—o—t—e—l—h—u—t—e—o—t
—s—f—l—n—m—s—n—b—e—m—l—y—e—t—f—a—.

John W. Wheatley.

NUMERICAL ENIGMAS.

1. I am composed of 27 letters:
My 7, 1, 25, 22, 10. 2, is an article of food.
My 3, 13, 17, 15, 5, is an article of table furniture.
My 21, 12, 23, 18, is an article of clothing.
My 11, 16, 6, 14, 22, is a fish.
My 7, 8, 20, 26, 19, is an unpleasant sensation.
My 7, 4, 9, 24, is what a certain famous bird did.
My whole is a sensible proverb.
2. I am composed of 12 letters:
My 8, 9, 3, 4, 5, is to reprove.
My 2, 6, 1, 5, is used every week by the laundress.
My 7, 10, 11, is a propeller.
My 1, 12, 4, is a cushion.
My whole is a flower. Mollie.

CROSS-WORD.

My first is in carrot but not in beet,
My next is in humbug but not in cheat,
My third is in merry but not in gay,
My fourth is in April but not in May,
My fifth is in ocean but not in sea,
My sixth is in sugar but not in tea,
My seventh is in apple but not in pear,
My eighth is in rabbit but not in hare,
My ninth is in stupid but not in slow,
My tenth is in arrow but not in bow,
My eleventh is in wicked but not in bad,
My twelfth is in cushion but not in pad,
My thirteenth is in partridge but not in game,
My whole is before you, pray tell the name.

ANSWERS TO PUZZLES IN THE MAY NUMBER.

Charades.—1. Aspire. 2. Ionian. 3. Hattie.

Metagram.—Princess: in which may be found the words press, rip, pin, rinse, (in the puzzle, the 4th item should have been printed "to wash," instead of "to walk") and sip.

Cross-Word.—Wintergreen.

Transposition.—Pots, tops, spot, stop, post.

Riddle.—Pair, pear, pare.

Biblical Enigma.—Worship the Lord in the beauty of holiness.

Concealed Square Word.

L I S T
I N T O
S T A R
T O R N

Pi.—Those who can not keep their own secrets, ought not to be entrusted with the secrets of others.

Anagrams.—1. Mathematics. 2. Onslaught. 3. Accoutrements. 4. Triumphantly. 5. Floundering. 6. Confidentially. 7. Energetically. 8. Promiscuous. 9. Gooseberries. 10. Disconsolate.

Enigmatical Story.—The star spangled banner.

Puzzle.—(Aerostic.) Plenty.

Hour-Glass Puzzle.

P I C T U R E
B R O O M
U R N
T
B U N
C O R A L
F R I E N D S
Torture.

Alphabetical Arithmetic.—1473)2436903(1651. (*Key*, Democritus.)

Biblical Double Acrostic.—Sarah, Lydia.—1. Saul. 2. Allegory. 3. Reed. 4. Abishai. 5. Hosea.

Charade.—Independent.

Puzzles, answers, and such matters as were formerly directed to "Aunt Sue," may hereafter be sent to "The Doctor," No. 245 Broadway, New York.

**Metagram Puzzle—An Omission.**—Last month we told what a Metagram Puzzle was, and gave the picture for the puzzle, but some how the descriptive matter was left out, and the affair was rather more of a puzzle than we intended it to be. Let us try again. You will find, on page 232, last month, a central picture which stands for a word, from which word can be made the other words represented by the objects around the picture. You are to fix upon the word for the picture, and then try to make the others from the letters in that.

## How Russian Farmers Live.

It seems a long time since we have had a talk about the ways of people in other countries than ours—and for a variety we will take a peep at the way in which the Russian farmers live—and this of course will include the Russian farmers' boys and girls. We hear much more now about Russia than we formerly did, and we can hardly take up a paper without finding something about Russia. To be sure, it is not all pleasant; we read of the great war with Turkey, of the plague, that dreadful disease, being in Russia, of political troubles in St. Petersburgh, Moscow, and other large cities, of the killing of officers, of the sending of people to Siberia to get the troublesome ones out of the way, and besides many other matters, we hear of the peculiar people called Mennonites, coming to this country. This is perhaps the best thing that we read now-a-days of Russia, for these Mennonites are peace-loving, industrious people, who come here in large colonies of families, settle in some part of the far-West, and form villages and towns of their own, where they lead quiet and useful lives. Their grand-children will be as good Americans as the best. But we were to say something of how the Russian farmer lives at home. The engraving, fig. 1, (see next page) of a farm village in the great wheat region of Central Russia, the neighborhood of the river Volga, where the country is generally level. The Russians have one custom which is common in the farming districts of Europe generally. Instead of having each house near the center of the farm, and the houses a long distances apart, as with us, the farmer does not generally live on his farm. The houses are built in a village, with may be the barns and granaries near the house, or on the home lot, but the land that is cultivated may be two or three or more miles away. The people have to travel far and

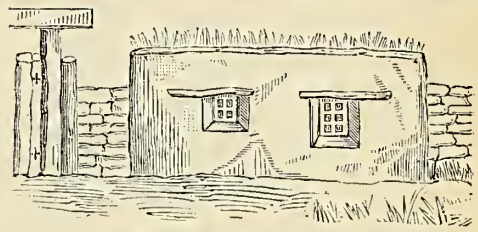


Fig. 2.—Russian mud cottage.

spend much time in going to and coming from work, but it makes farm-life more sociable, as the people can see one another and enjoy many things that are not possible where all are scattered far and wide. It might be well if we adopted something of this plan in this country; both methods have their advantages, and people are slow to give up their old ways. One writer says that he travelled in that part of Russia for miles and miles, and saw nothing but wheat field after wheat field, varied with wide tracts where horses and cattle pastured, but no fences anywhere. At last he saw some curious green objects in the distance shaped like enormous pears; at length he made out that these were cupolas of the church, and before he was aware of it, he was upon the village, with no other warning than the barking of dogs. Russian farmers, like poor people everywhere, keep an abundance of worthless curs. This writer gives (fig. 1) a picture of the first of these villages he saw. The small log-houses are all alike, and arranged in several rows, with wide streets between them half a mile or more long. At one end of the village is the church, with its odd cupolas, at the other the larger house of the land-owner (not shown) who rents the farms to the tenants. Small granaries—the square huts without windows—stand in the middle of the street, and long rows of tall poles, show that water is raised here by the old fashioned well sweep. In some places, where logs can only be had by hauling for great distances, the villages are of mud houses, built of brieks merely dried in the sun; one of these houses is shown in fig. 2, and these, while they can not be called handsome, are said to be very comfortable in the long cold winters. Pigs, poultry, and curs, run at large in the streets, and when a stranger enters these make a great fuss. Not a very attractive picture of farm-life you will think, yet many thousands of people live in just this way, and it is well to know it. Compare such a farm-house as one of these with one of ours—your own, it may be, with all its pleasant surroundings without,

THE WOODCHUCK HUNT.—*Drawn and Engraved for the American Agriculturist.*

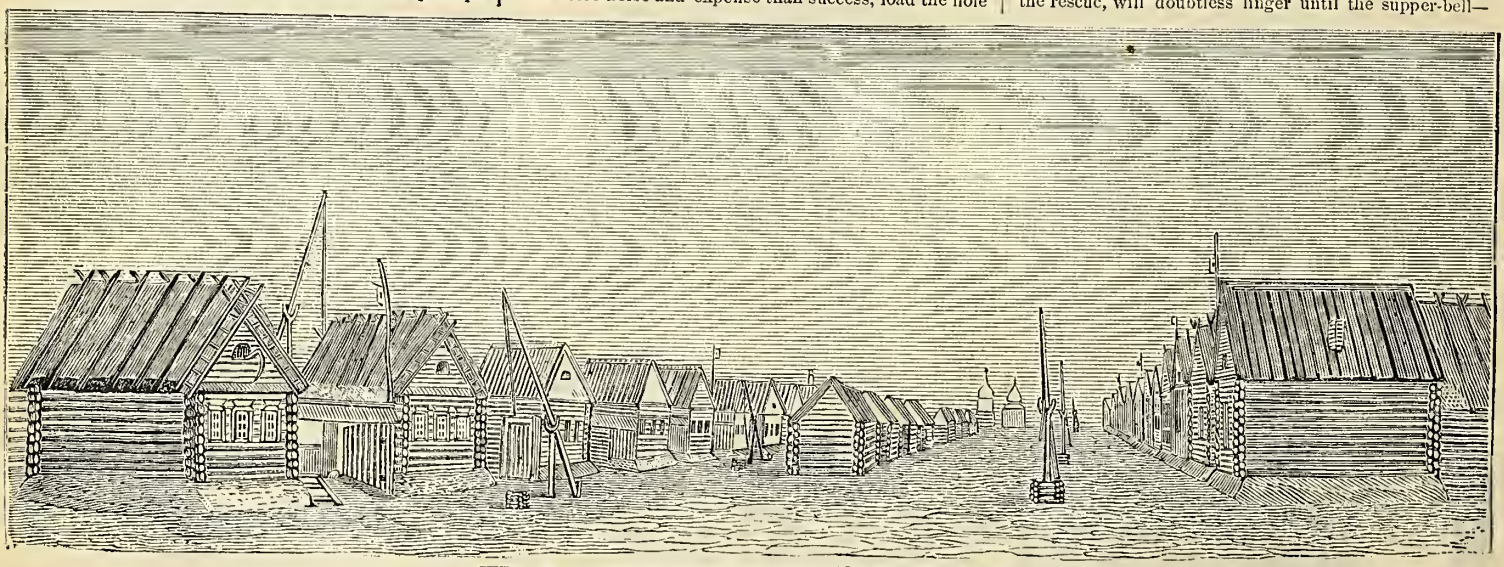
and the many home comforts within. If the comparison makes you the more contented with your own—and it is a fact, that boys, and girls too, are more apt to compare their own lot with that of those who are better off, than with that of those who are more poorly off than themselves—if, we say, a comparison makes you better appreciate the home, such as it is, and brings that content without which no home can be happy—then it will be well that you have taken a glimpse at the way farmers live in Russia. Recollect "There is no place like home."

## Hunting the Woodchuck.

The Woodchuck is one of the most common wild animals in the United States east of the Mississippi River. I wonder how many boys and girls within this great Woodchuck region have seen, run after, and perhaps been scared by this stout, broad-headed, black-eyed, proverbially plump-cheeked, short-legged, and altogether rather fat animal? I remember, when a boy, they sometimes called me "as fat as a woodchuck," and I sometimes thought they took me for a real one when I was sent under the low barn and into all sorts of dark holes for the eggs in stray hen's nests. The Woodchuck by no means confines himself to river banks and the sides of ravines in proximity to clover and grain fields, but it has been my observation that they are specially fond of such situations. It is no rare thing to find their burrows and mounds of dirt scattered over the level fields and their winding paths running from them to some favorite feeding ground or watering place. They do much damage to crops, and obstruct the reaper and mower by their hillocks of earth and treacherous holes. Woodchucks, as they feed upon various crops, and are especially destructive to clover, are considered a nuisance—a common enemy, which every farmer's boy feels that he has a right to hunt and destroy. All who have tried it will agree with me when I say that they are not easily caught, and it is sometimes a serious matter to get rid of them. Their burrows are so long and deep that to dig them out of house and home is not an easy task. Some people, with more noise and expense than success, load the hole (suppose it to be an old one or while the *inmates* are out!) with powder, plug it up, and by means of a fuse attempt to blow them up. To drown them out is not an easy task, especially if the soil is dry and the burrow is long and nearly horizontal. They are sometimes poisoned with strychnine put in some food and dropped near the entrance, but there is danger in this, as the wrong animal may get the poison.—When I was a boy I spent much time in making "dead falls," which were set at the entrance of many a Woodchuck's hole, but if my memory is correct, I never secured a single specimen in this way. At first I used to sit behind a distant fence, expecting that I should have the fun of observing the capture, and pictured in imagination what I should do provided several traps should spring at the same moment; but those hours grew so long, and my expectations faded away so rapidly, that I was soon content to visit my "dead falls" at distant intervals, and at length gave up all hope of catching a Woodchuck in that way. The "trap" was too plain to their sharp eyes, and with due caution "they passed by on the other side."—I think that it was the next season that the steel-trap was employed; but the old fellows had learned my intentions, and with all my pains they came out ahead. I thought I did everything needful for successful trapping, but success did not follow. Several times the trap would be sprung and carried into the hole, but upon pulling it out, with throbbing heart and anxious eyes, there would be nothing more than a few hairs. It would have been just as easy to have written that I came off a hero with a fine stock of skins to show for my work, but the truth is preferred. I did not get back the interest on my money invested in the traps. I never even got all my traps back; but I do not lay *that* up against the Woodchucks.

Boys who would hunt this pest of the farm with some degree of success, should have a faithful and resolute dog who can dig and bark. With a long sapling—you may be able to make it so uncomfortable for the Woodchuck, that in the very face of danger he may be made to leave his hole. If he lives beneath a stump pile or a stone fence, as may be the case in the picture, so much the more fun, because it gives each boy a greater opportunity to be active in the fight. As the matter stands in the engraving, we would not ensure a capture of the prey; the head of the horizontal youth in the foreground seems to be in more danger than the Woodchuck. It will be sometime before these boys get back to the place where they unceremoniously left off hoeing the corn, and the neighbor's boy who heard the fun and is hurrying to the rescue, will doubtless linger until the supper-bell—that powerful magnet of the farm—draws him home. A word of caution, drawn from experience—boys, if you have "company" at home—some city cousins perhaps—and you wish to meet them in the parlor—when you are looking for woodchucks, be careful that you do not thrust your long pole into the subterranean home of a peculiarly defensive and offensive creature, which an Irishman called "a foin spotted cat."

UNCLE HAL.



VIEW OF A RUSSIAN FARM VILLAGE.—(*See preceding page.*)

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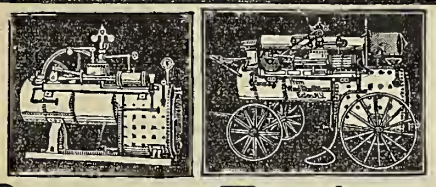
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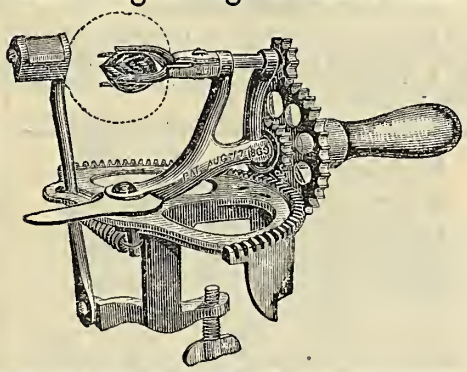
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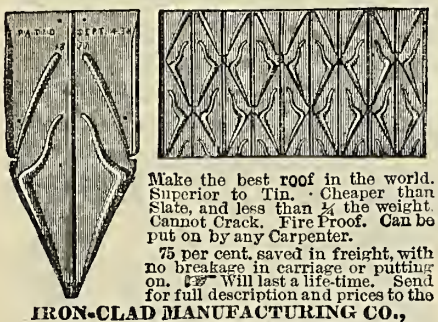
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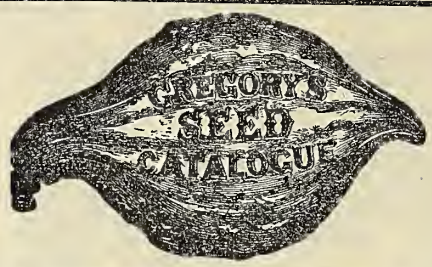


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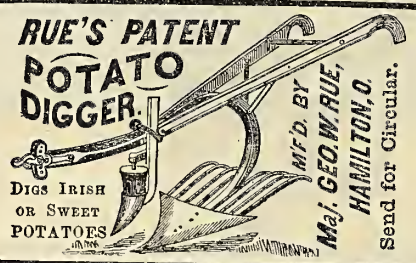


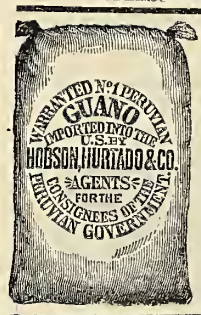


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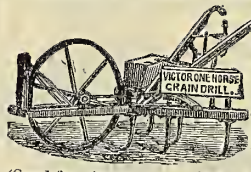


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Here is a **great opportunity** for those who have some means and wish to purchase farm lands in Nebraska for cash instead of buying them on time at very much higher figures. Those who contemplate going to Nebraska should not delay purchasing their lands though they can not move their families this year, inasmuch as all of the good land is being rapidly taken, and the prices are naturally **becoming higher.**

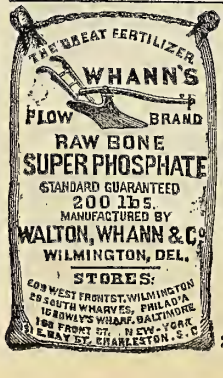
As an investment, it is a good thing to purchase good lands now anywhere in Nebraska near railroads, since the increase in value will put money in the pockets of the holders. No one need answer this advertisement regarding these particular lands, who is not prepared to buy for cash. The price per acre has been fixed on a cash basis. No reduction will be made, and no time offers will be considered. Address immediately,

**C. A. H., Post-Office Box 74, New York City.**

# POTATO BUGS AND COTTON WORM.

**THE NEW INSECTICIDE.** # London Purple. (Trade Mark.)

Superior to and **one-third** the price of Paris Green. Manufactured only by HEMINGWAY & CO., 60 Mark Lane, London, Eng., New York P. O. Box 990, who will forward address of nearest dealer from whom supply can be obtained.




## ESTABLISHED 1861.

**For the last ten years under the supervision of a Professor of Chemistry,** whose whole time is given to our business. **All raw material,** as well as **finished products,** are carefully analyzed; under no other system can a reliable fertilizer be made. Each package bears a correct analysis of its **contents of plant-food,** which analysis **we guarantee to be true in every particular!** A long experience, complete works, and large business, enable us to buy raw materials and manufacture our goods, to the best advantage, so that we sell the **best quality of goods** at the **lowest possible price!** Our "Plow" fertilizer is a "complete manure," containing **every element required,** and in proper proportion, to produce **any crop,** and is especially noted for its **superior mechanical condition,** very **dry,** and finely pulverized, in **perfect** condition for broadcasting or drilling. Analyzes 2½@3½ per cent Ammonia, 8@9 per cent Available Phosphoric Acid, 2@3 per cent Potash. Price, $40 per ton. Delivered on cars or vessel, in New York, Philadelphia, Wilmington, Del., or Baltimore, Nett Cash. When ordered in lots of one ton and over, a discount of five per cent will be allowed from this price.

**WALTON, WHANN & CO.,**
**Wilmington, Del.**

28 South Wharves, Phila.; 16 Bowley's Wharf, Baltimore; 40 S. Broad St., Atlanta, Ga.; 2nd St., below Poplar, Macon, Ga.

Victorious at the Paris Exposition, 1878.

## FARMERS FRIEND
## Grain and Fertilizer Drill.

PARIS 1878

Receives the Gold and Silver Medals. Also the **GOLD MEDAL** of the **AGRICULTURAL SOCIETY OF SCOTLAND,** at a field trial November 19th, 1878.

The **Cone Gearing** and **Double Force Feed** always give it preference on trial with any other.

We make plain, fertilizer or spring hoe Drills of any size, with Force Feed Grass Seeder. Patent Hoe Shifter and Surveyor free.

Greater inducements to purchasers for 1879 than ever.

For circulars, etc., mention this paper, and address

**FARMERS FRIEND M'F'G CO.,**
**Dayton, Ohio.**

---

**FARMERS,**

## LOOK AT THIS!

The undersigned have come into possession of the following articles, which they will dispose of at a BARGAIN.

| | LIST PRICE. |
|---|---|
| 1 Prairie King Gang Plow, | $90.00 |
| 1 Prairie King Sulky Plow, | 78.00 |
| 1 Champion Walking Cultivator, | 32.00 |
| 1 Turtle Pulverizing Harrow, | 17.00 |
| 1 Flexible Smoothing Harrow, | 12.00 |
| 1 Star Sub-Soil Plow, | 16.00 |
| 1 Star Sub-Soil Plow, | 11.00 |
| 1 Victor Horse Hoe, | 12.00 |
| 1 Champion Horse Hoe, | 12.00 |
| 1 Eagle Corn Planter, | 15.00 |
| 1 Eagle Seed Drill, | 7.00 |
| 1 Eagle Seed Drill, | 9.00 |
| 1 Clipper Wheel Hoe, | 5.50 |
| 1 Clipper Wheel Hoe, | 4.00 |

These goods are samples made by the best manufacturers, have never been used, and are ready for immediate use. Address RAND, AVERY & CO., 117 Franklin St., Boston.

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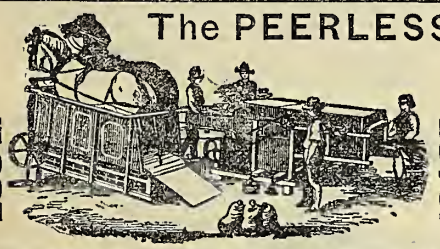
## The PEERLESS

1854. 1879.



**Thresher and Cleaner—Clover Huller and Cleaner—Straw-Preserving Rye Threshers—Railway and Lever Powers—The Howland Feed Mill—Grain Fans and Corn Shellers.** Our machines are guaranteed to work well, and have received the highest testimonials and cannot be excelled.

**B. GILL & SON,**
Trenton Agricultural Works, Trenton, N. J.

---

## THE BEST!

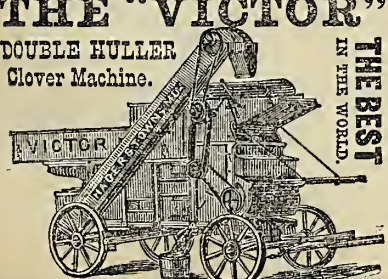
## THE "HAGERSTOWN" DRILL

**Most successful** Grain-Drill in use. Can change quantities of seed *while in motion.* Strong, durable, and simple, with Pin or Gum Spring Hoe and Grass Seed Sower. ☞ **Standard Fertilizing Drill.**

## THE "VICTOR"

**DOUBLE HULLER**
Clover Machine.

**THE BEST IN THE WORLD.**




Send for Descriptive Circular and Price-List to
**HAGERSTOWN AGRICULTURAL IMPLEMENT MFG. CO.**
*State where you saw advertisement.* Hagerstown, Md.

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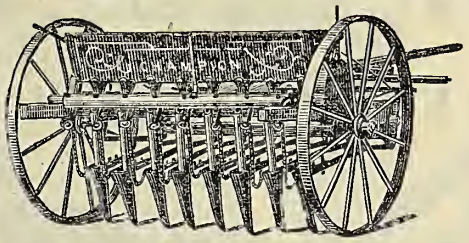
## Champion of the World!

**THE**

## Champion Grain Drill.



**With or without Fertilizer, or Grass Seeder Attachments, or Gum Spring Hoes.**

It has a **perfect force feed** Grain Distributor that will sow accurately all kinds of grain without the least injury to the seed.

**UNEQUALED AS A CORN PLANTER.**

Fertilizer attachment **can be relied upon** to sow all kinds of commercial manures whether dry or damp in any desired quantity.

**Draft Light, Construction Simple, but durable.**
Liberal discount to cash customers.
Send for descriptive circular.

**JOHNSON, GERE & TRUMAN,**
**Owego, Tioga Co., N. Y.**

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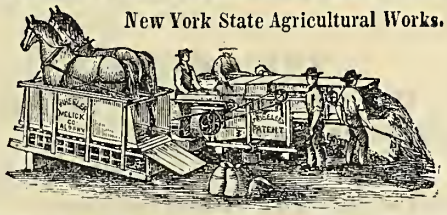
## MEDAL MACHINES.

New York State Agricultural Works.



First Premiums at all Competitive Trials.

**Railway, Chain and Lever Horse Powers, Threshers and Cleaners, Threshers and Shakers, Clover Hullers, Feed Cutters, Wheel Horse Rakes, Horse Pitchforks, Shingle Machines, Straw Preserving Rye Threshers, Portable Steam-Engines, Cider and Wine-Mills and Presses. Dog and Pony Powers, etc., etc.**

**WHEELER & MELICK CO.,**
**ALBANY, N. Y.**
Send stamp for Circular and report of Centennial trial.

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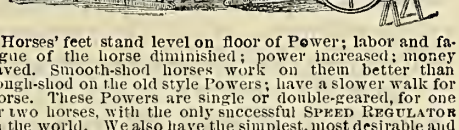
## 1879.—LEVEL TREAD HORSE POWERS.

Awarded a MEDAL and DIPLOMA OF HONOR, at the International Exposition.

**HEEBNER'S IMPROVED**

***Level Tread Railway Horse Power and Speed Regulator.***



Horses' feet stand level on floor of Power; labor and fatigue of the horse diminished; power increased; money saved. Smooth-shod horses work on them better than rough-shod on the old style Powers; have a slower walk for horse. These Powers are single or double-geared, for one or two horses, with the only successful SPEED REGULATOR in the world. We also have the simplest, most desirable and cheapest Threshers, Separators, and Cleaners, for one or two horses. These Powers and Machines will do more work, with less labor for horse or operator, than any other; pronounced superior by every purchaser. Have on record in our office a large list of First Premiums, Diplomas, and Medals of State and County Fairs in the United States. We are the Proprietors of the Patents and Sole Manufacturers. ESTABLISHED IN 1840. ☞ Send for Circulars, and learn of the great success of these Machines. Address

HEEBNER & SONS, Lansdale, Montgomery Co., Pa.

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**AGENTS Wanted.**

## CHURCH'S HAY ELEVATOR & CARRIER

Best in use for mowing away hay in barns or stacking, being adapted for either purpose. Has no equal for **simplicity, durability** and **good work.** The track is **self-adjusting** and is easily put up. Will be sent to responsible parties on trial. **Send for special terms for introduction.** Price within reach of all. Send for descriptive Circulars and Price List to **E. L. CHURCH & CO.,** Manufacturers, Harvard, McHenry Co., Ill.

---

## NICHOLS, SHEPARD & CO.,

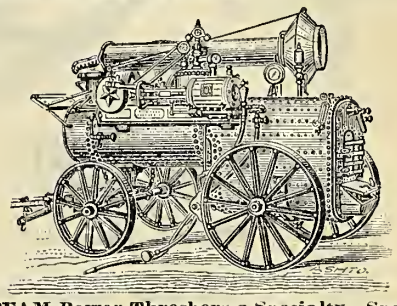
**Battle Creek, Mich.**

**ORIGINAL AND ONLY GENUINE**

## "VIBRATOR"

**THRESHING MACHINERY.**

**THE Matchless Grain-Saving, Time-Saving,** and Money-Saving Threshers of this day and generation. Beyond all rivalry for Rapid Work, Perfect Cleaning, and for saving Grain from Wastage.



**STEAM Power Threshers a Specialty. Special** sizes of Separators made expressly for Steam Power.

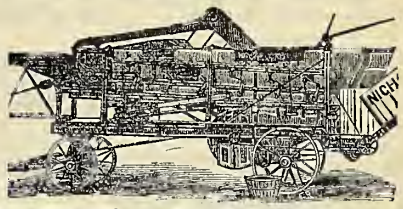
**OUR Unrivaled Steam Thresher Engines,** both Portable and Traction, with Valuable Improvements, far beyond any other make or kind.

**THE ENTIRE Threshing Expenses (and often** three to five times that amount) can be made by the Extra Grain SAVED by these Improved Machines.

**GRAIN Raisers will not submit to the enormous** wastage of Grain and the inferior work done by all other machines, when once posted on the difference.

**NOT Only Vastly Superior for Wheat, Oats,** Barley, Rye, and like Grains, but the ONLY Successful Thresher in Flax, Timothy, Millet, Clover, and like Seeds. Requires no "attachments" or "rebuilding" to change from Grain to Seeds.

**IN Thorough Workmanship, Elegant Finish,** Perfection of Parts, Completeness of Equipment, etc., our "VIBRATOR" Thresher Outfits are Incomparable.



**MARVELOUS for Simplicity of Parts, using** less than one-half the usual Belts and Gears. Makes Clean Work, with no Litterings or Scatterings.

**FOUR Sizes of Separators Made, Ranging** from Six to Twelve-Horse size, and two styles of Mounted Horse Powers to match.

**FOR Particulars, Call on our Dealers or** write to us for Illustrated Circular, which we mail free.

---

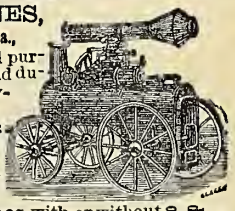
Received Medal AND HIGHEST AWARD

OF MERIT AT CENTENNIAL.

*Send for Catalogue.*

## STEAM ENGINES,

**A. B. FARQUHAR, York, Pa.,**



Cheapest and best for all purposes—simple, strong, and durable. Also Horse Powers and Gin Gear.

SAW, GRIST AND COB MILLS, GINS, PRESSES AND MACHINERY generally. Inquiries promptly answered.

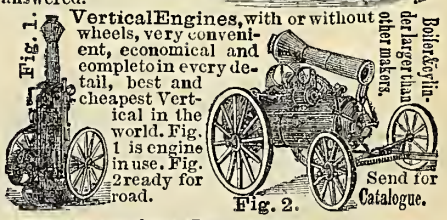


Fig. 1. Vertical Engines, with or without wheels, very convenient, economical and complete in every detail, best and cheapest Vertical in the world. Fig. 1 is engine in use. Fig. 2 ready for road.

Boiler's like Fig. 1, but larger than other makers.

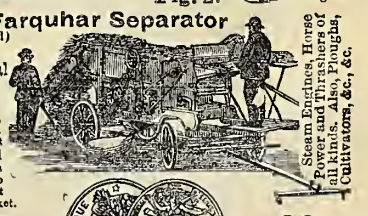
Fig. 2.

Send for Catalogue.

**The Farquhar Separator**
(Warranted)

Penna. Agricultural Works, York, Pa.

Lightest draft, most durable, simplest, most economical and perfect in use. Wastes no grain, cleans it ready for market.



Steam Engines, Horse Powers and Threshers of all kinds. Also, Ploughs, Harrows, &c., Cultivators, &c.

AND HIGHEST PRIZE AWARDED SEPARATORS,

THE SILVER MEDAL AT Paris Exposition.

Send for Illustrated Catalogue. *Address A. B. Farquhar, York, Pa.*

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## Hutchinson's Patent Adjustable Harrow.

Farm rights, with instructions, $2.00. Complete harrows shipped to any address, $12.00. Stamp for circular.

S. HUTCHINSON, Griggsville, Pike Co., Ill.

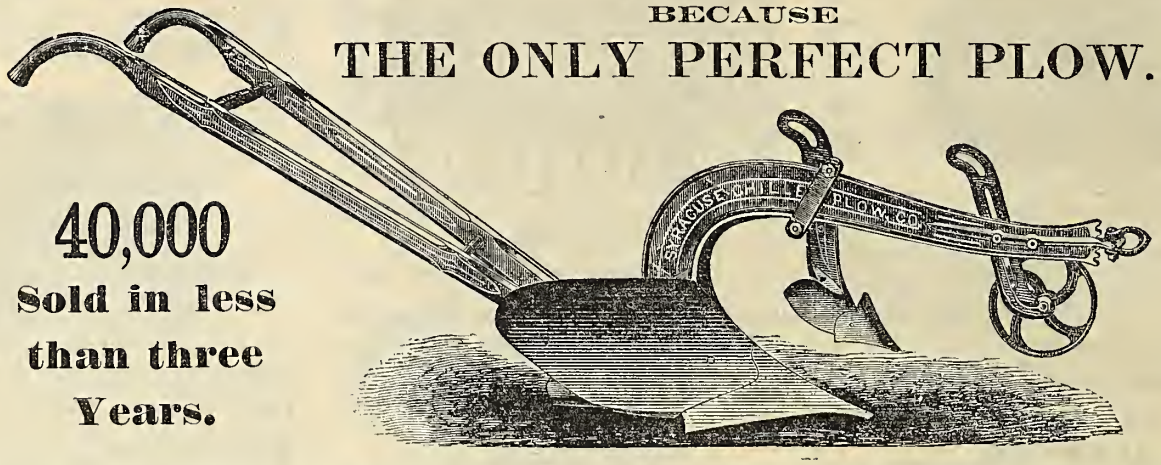
# THE SYRACUSE CHILLED PLOW.

## THE CHEAPEST AND BEST IN THE FIELD,

BECAUSE

## THE ONLY PERFECT PLOW.

Perfect Workmanship.




**40,000 Sold in less than three Years.**

Perfect Material.

## POSITIVE EVIDENCE OF ITS VALUE.

**READ THE TESTIMONY.**

### THE EVIDENCE.

MAYVILLE, N. Y., Oct., 1878.
Your Plow suits me. It cleans the best of any Plow I ever used. It is just the thing. W. H. CRANE.

MINA, N. Y., Sept., 1878.
I recommend farmers to try one of your Plows before purchasing elsewhere. I am using one, and consider it the best Plow I ever used. D. P. HORTON.

MT. JACKSON, Pa., Nov. 20, 1878.
GENTS:—I have used the Syracuse Chilled Plow, and am fully satisfied that it does better work and in every respect surpasses any Plow that I have ever used.
Yours truly, JOHN R. HAYES.

BROADALBIN, N. Y., July 27, 1878.
GENTS:—I have used your Plow, and consider it the best in the market. I would not sell the one I have for $100, if I could not obtain another like it. J. B. CHAPMAN.

WOODSTOCK, Ct., January 24, 1879.
We, the undersigned, have each within the past year become the owner of a "Chilled Plow" from the celebrated manufactory of the "Chilled Plow Co.," Syracuse, N. Y., and we do not hesitate to say that we believe this implement to be a most useful and valuable invention, and should be in the hands of every farmer.
HENRY T. CHILD,
FOTION SAMPSON,
STEPHEN MORSE.

MT. JACKSON, Lawrence Co., Pa., Nov. 20, 1878.
MR. W. C. HOPPER, Agt.:
*Dear Sir:*—The Syracuse Chilled Plow bought of you this fall gives perfect satisfaction. I have used your Plow to plow twenty-eight acres, and I find that the Syracuse Chilled Plow is the best Plow for all kinds of ground that I ever used. I think I can plow much more ground in the same time, and one-third easier, than with any other Plow.
Respectfully yours, W. H. HOPPER.

WEBSTER, Mich., June 4, 1878.
SAM. MCLAREN:
*Dear Sir:*—The Syracuse Chilled Plow that I purchased of you is, I think, the most perfect Plow for general use that I ever saw. I have plowed with it some of the worst soil I ever saw—it being low, mucky stuff, that I have tried to plow before with three different kinds of plows, and the Syracuse Chilled Plow is the only one that would work at all in it, and that done its work very nice, and for draught and ease of handling, I think it has no equal. I have lent my Plow to two of my neighbors, and they join with me in its praise, pronouncing it to be the most perfect Plow they ever saw. Mine is the two-horse, No. 1.
Yours, respectfully, D. F. THOMAS.

OTTER CREEK, Mercer Co., Pa., March 11, 1879.
PACKARD & Co.:
*Gents:*—In reply to your note of the 5th inst., regarding the merits of the Syracuse Chilled Plow, I would say, that I have used, during the last forty years, almost every pattern of Plow, from the small corn size to the heavy Eight-Horse Railroad Plow, and can honestly say, that the Syracuse is the most perfect for farm use that I ever owned. It will turn down heavy tangled clover and cover every blade, and leave the surface clean and loose, and will work equally well in dirty stubble. It will turn a sod up hill, and unless thrown out by large stones, will keep in the ground with but little attention from the plowman. The head-gear is so well arranged that it can be set to the work as needed, and the draft is very light. It is in fact the plow that every farmer needs.
Very truly yours, M. D. SCURRY.

### THE REASONS.

**They are a more durable Plow than any other in use.**

**They will clean in any soil superior to the best tempered Steel Plows.**

**They possess the like superiority over any Cast Iron Plow, and their draft is twenty-five per cent less.**

**We have this season 40,000 of our Plows in the field, and every plow is warranted to give satisfaction.**

**Our Plows command a higher price in market than any other Chilled Plow. We do not enter into competition with manufacturers of inferior Plows as regards prices, any more than they compete with us as regards quality. Our Plows are, however, practically the cheapest plows ever put into the field.**

**Each purchaser of one of our Plows is furnished with a guarantee if he desires it, giving the name of the purchaser, his residence, date of the purchase, style of plow, and the name of the agent by whom the Plow was sold. To the guarantee is attached the corporate seal of our Company.**

**Wherever a colter will work, the Jointer will work, and do all that the colter can do, and much more effectually. When the Jointer Point needs replacing, the farmer can replace it by loosening one bolt, with a new point that will cost him but twenty-five cents. This is a great saving over the time and expense required to re-face and sharpen a colter.**

### THE EVIDENCE.

PANAMA, N. Y., May, 1878.
I have bought and used one of your Plows, and I consider it in all respects the best Plow I ever used.
LOREN B. SESSIONS.

CANFIELD, Ohio, Sept. 10, 1878.
GENTLEMEN:—I took two of the Syracuse Chilled Plows on trial, this fall, and find them all you recommend them to be. MARTIN NEFF.

HUDSON, Ohio, Dec. 7, 1878.
DEAR SIR:—I have used the Syracuse Chilled Plow bought of you, and am satisfied it does better work, and in every way surpasses any Plow I have ever used.
WENDEL KROEHLE.

HUDSON, Ohio, Dec. 21, 1878.
DEAR SIR:—I have used a Syracuse Chilled Plow, bought of you last summer, and am satisfied that it runs easier, cleans better, and does the best work of any Plow I have ever used. My men fully agree with me.
JOHN MACK.

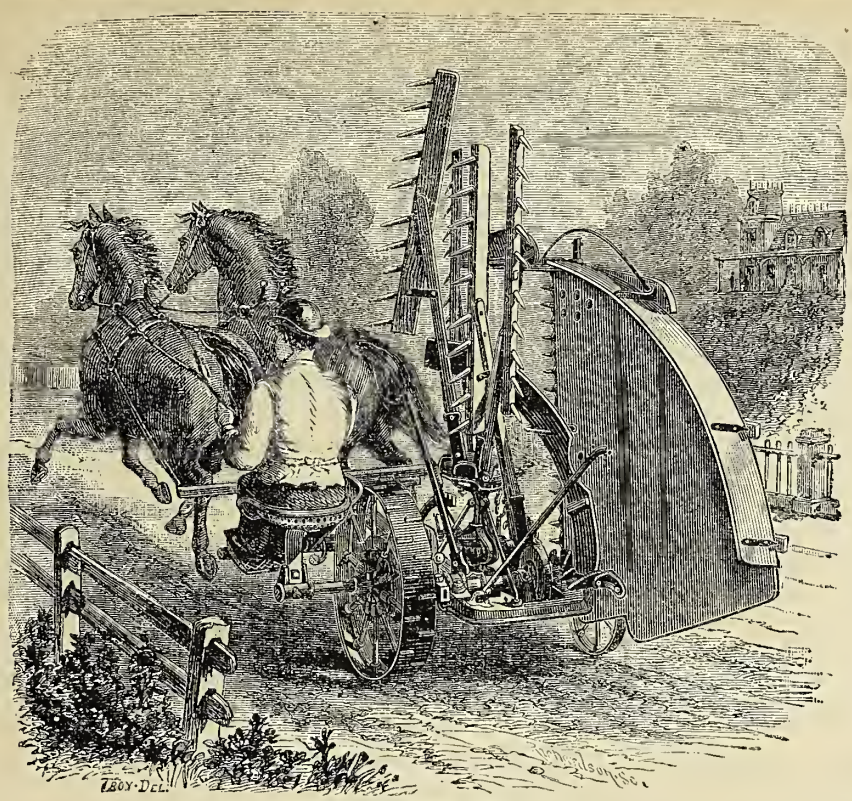
LIBERTY, Ohio, Sept. 21, 1878.
ANDREWS, HILL & Co.:
*Gentlemen:*—I have used one of your Syracuse Chilled Iron Plows bought from you this fall, and put it in competition with an Oliver Chilled Plow that I bought last spring, and find upon trial that it possesses many points in its favor over the Oliver Chilled Plow, and I do not hesitate in saying it is by far the best general purpose plow I have ever used, and cheerfully recommend it to any in want of a first-class Plow. JONATHAN KEEFER.

NEW PHILADELPHIA, Ohio, Dec. 19, 1878.
SYRACUSE CHILLED PLOW CO.:
*Gents.:*—I took one of your Plows on trial with those of other manufacturers, and among them was included the Oliver Chilled Plow. I gave each of them a fair trial, and have no hesitation in pronouncing your Plow superior to them in all respects. It holds easier, cleans perfectly, and draws lighter, and runs steadily where the other plows would not. I also think it pulverizes the ground and leaves it in the best shape of any plow I ever saw. It will pay any farmer wanting a plow to give it a trial.
J. B. WALLACE.

DEERFIELD, Mich., June 7, 1878.
MR. BURNETT:
The No. 1 Syracure Chilled Plow I bought of you last spring, I can unhesitatingly say is the best general purpose plow that I ever used. After using it upon my farm, I lent it to several of my neighbors for trial, all of whom, without exception, pronounce it a number one plow for business. In this section some of the Chilled Plows fail to clear in our sticky soil. No such objection has occurred here with the Syracuse Chilled. It runs light, holds easy, and turns admirably.
Yours truly, ARMON BARRITT.

FREDONIA, Mercer Co., Pa., Mar. 12, 1879.
PACKARD & CO.:
*Dear Sirs:*—I take pleasure in stating that I am well pleased with the Syracuse Chilled Plow. I have tried it in sod and stubble ground both, and it gave perfect satisfaction; and I tried it in clover from fifteen to eighteen inches high, and it turned it down so that you could hardly see a stalk, and there were several of our best farmers saw it work, and they said it beat anything they ever saw. As regards scouring, where I could not get another plow to turn without clogging, the Syracuse Plow turned it without a bit of trouble, and I would say to any farmer that stands in need of a plow to try the Syracuse before purchasing any other kind, as I think it is the best.
Yours respectfully, JAMES McCANN.

## SYRACUSE CHILLED PLOW COMPANY, Syracuse, N. Y.



ADRIANCE REAPER ON THE ROAD.

**ADRIANCE, PLATT & CO.,**

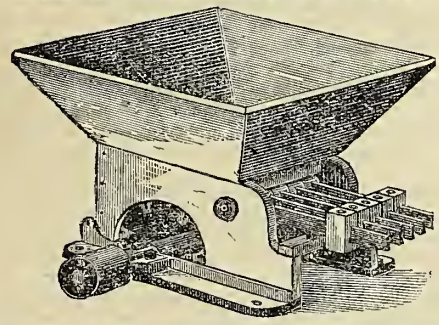
**Manufacturers of Buckeye Mowers and Reapers, and the Adriance Reaper,**

**Manufactory, Poughkeepsie, N. Y.** **165 Greenwich St.** (near Courtlandt St.), **New York.**

The **ADRIANCE** is a **light, strong, simple, efficient REAPER,** which will **work well in all kinds and conditions of grain,** and combines **more good points than can** be found in **any** other. It has a **folding platform,** and is in all respects **worthy** to **rank** with the **Buckeye Mower.**

The **BUCKEYE** has for **21 years** held its position as the **LEADING MOWER** and **REAPER** of **THE WORLD,** because it is **superior to all others** in the **principles of its construction.** It is the **only machine which has given entire satisfaction to the farmer;** its **AVERAGE DURABILITY** has been **MORE THAN DOUBLE** that of others, and the **COST OF KEEPING IT IN REPAIR LESS THAN ONE-HALF.**—Prices **Reduced** to the lowest point at which the high standard of excellence in material and workmanship can be maintained. Descriptive Circulars forwarded by mail.

**APPLE GRATER.**



This Grater is first-class in every respect; has iron cylinder, iron frame, steel knives, adjustable concaves, and is not surpassed for quantity or quality of work.

**PRICE REDUCED TO $40.**

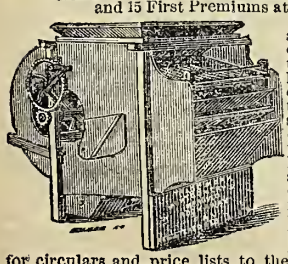
For catalogue of cider machinery and other information, valuable to cider-makers, address

**BOOMER & BOSCHERT PRESS CO.,**
**Syracuse, N. Y.**

**MONTGOMERY'S**

**Improved Rockaway Fan.**

**222 First Premiums. 15 Silver Medals.**
**Gold Medal at Md. Institute in 1878,**
and 15 First Premiums at other Fairs.



No good Farmer can afford to be without one of these Fans! This universally known Fan has been victorious in every contest, and has the approval of thousands of Farmers all over this country. It is the best and cheapest Fan made for the farmer and planter. It is the only Fan that will effectually take out of wheat the great Virginia trouble "Partridge Pea." Prices reduced. Send for circulars and price lists to the manufacturers.

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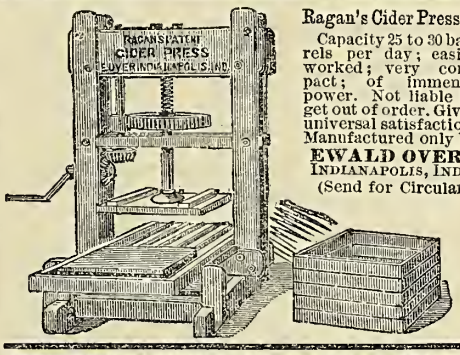


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**CHAMPIONS OF THE WORLD.**

No Cogs or Ratchets, Easiest Hand or Horse Dumping. Purchasers prefer them to all others for Durability and Efficiency. Fully guaranteed; so no risk is incurred in ordering from us. Responsible Agents wanted where we have none.

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**Gardner's Railway Pitching Apparatus.**

Consisting of Carrier, Grappling Fork, Pulleys, and Hooks. For unloading Hay, Grain, Beans, Corn Stalks, loose or in bundles, etc. Can be used in any barn. Also, Improved Stacking Apparatus. Send for Circular, and get valuable information.

**E. V. R. Gardner & Co.,**
Johnson's, Orange Co., N. Y.

*containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.*

Continued from Page 256.

**In justice to the majority of our subscribers, who have been readers for many years, articles and illustrations are seldom repeated, as those who desire information on a particular subject can cheaply obtain one or more of the back numbers containing what is wanted.**

**Back numbers of the "American Agriculturist," containing articles referred to in the "Basket" or elsewhere, can always be supplied and sent post-paid for 15 cts. each, or $1.50 per volume.**

**Plowing In Clover.**—"F. H.," Wood Co., Ohio. To plow in clover is an excellent preparation for wheat; but it is not well to bury it too deeply. Just enough to cover the clover is right. It will be best to take a crop of hay and plow in the second growth, not deeper than 4 or 5 inches. Then work the surface well with a cultivator or harrow until fine, and drill in the wheat. The more a clover sod is worked with the harrow the better; to roll the ground after plowing would be advisable, to get the soil compact.

**Adamant Plows.**—"O. A.," Belmont Co., Ohio. While there are many other good plows, the Adamant A plow, which was described in the *American Agriculturist* June, 1878, is an excellent one, and deserved all that was said about it at that time.

**Devon Cattle for the Dairy.**—"T. F.," Cecil Co., Md. The Devons are the oldest known breed of domestic cattle, and have been highly thought of on account of their usefulness as draft oxen more than on any other account. Since oxen have gone out of fashion as draught beasts, the Devons have declined; this has also been helped considerably by the greater prominence given to the Shorthorns for beef. Notwithstanding, the Devons are good cows, give rich milk, and yield the best butter, but they do not hold out very long; the oxen are the best workers and the beef is unexcelled. For light and rough pastures there are no better cattle. It is a mere matter of fashion that they have been neglected for a few years past. Their day will doubtless return again.

**Lime and Manure.**—"E. E. W.," Venago Co., Pa. It is a common practice in Pennsylvania to apply lime and manure together in preparing for wheat or rye. The manure is plowed in lightly, and the lime is then spread, the ground is harrowed, and the seed is sown. There is nothing objectionable in this practice. On the contrary, Pennsylvania farms and farming are hard to beat, and their system might be followed elsewhere.

**"Wrigglers."**—"J. R. H.," Hudson, O. With the hundreds of letters that we write it is impossible for us to remember the question of each one, and the reply made to it, therefore your note is not intelligible so far as it refers to what has been written. When you say that "the wrigglers are not the larvæ of that musical bird, the mosquito," then we can only reply that the wrigglers that *you* are talking about, and the insects that *we* know as wrigglers are two very different things.

**Curing Warts.**—"J. C.," Northfield, Ct., writes that a number of warts that he had upon his hands suddenly disappeared. It occurred to him that he had shortly before repacked some corned beef, and had his hands thoroughly covered with brine. Since then, when warts have appeared, he has cured them by rubbing them with a bit of corned beef. This is probably only a convenient method of applying salt, as we can hardly suppose that there is any efficacy in the beef.

**Abscess in a Cow's Leg.**—"O. C. M.," Meigs Co., Ohio. Abscesses or suppurating swellings may occur from bruises or other injuries. They are not likely to be occasioned by internal disease. To treat them, they should be laid open, and if they have by neglect become fistulous, the pipes should be cut through freely; then inject into the opening a solution of 10 grains Nitrate of Silver in one ounce of distilled or rain water, until the diseased parts are sloughed off. After that, treat with Compound Tincture of Myrrh or some other stimulant, and keep the parts clean by washing with Carbolic soap and water, and protect with a bandage. Giving a few doses of Hyposulphite of Soda may help the remedy.

**Cultivating Wheat.**—"T. E. B.," Hutchinson, Kans. Wheat may be drilled in, in rows 12 to 16 inches apart, by stopping up every alternate spout. This will leave it in condition to be worked with the Travis wheat cultivator. The advantages of cultivating wheat, are certain and sufficient to induce wheat growers to practice it.

**Bloody Milk.**—"L. N. Z.," Lansing, Ill. When a cow gives blood in the milk, it is a symptom of inflamed or congested udder. The usual remedy is, to give a dose of cooling medicine, 8 to 12 oz. of Epsom salts, for instance, and afterwards half an ounce of saltpeter daily, for a few days. The udder may be bathed in cold water, and the food should be light. Heavy milkers are frequently troubled in this way.

**Raising Water.**—"J. K. C.," St Louis. To work a pump with compressed air, some motive force must be used to compress the air. It is a principle of mechanics, that indirect or secondary action, requires more force, than direct acting, other things being equal, because there is more machinery to move, and more friction and inertia to overcome. The simplest motive power is a windmill, and if a "Universal" pump were attached to it, water could be raised to a tank with little trouble. It would work night and day, without close attention. The method of raising water up an incline by means of one of these pumps is described elsewhere.

**Breeding an old Mare.**—"L. M.," Washington Co., Pa. There is nothing to fear in breeding a mare at the age of 13 years. Many older mares, Goldsmith Maid the famous trotter mare, for example, have reared colts.

**Veterinary Journal.**—"J. H. J.," Polo, Ill. An excellent veterinary journal is published monthly, by the faculty of the American Veterinary College, of which Dr. A. Liautard is President. The address is 141 West 54th St.

**"Quarter or Third Pitch."**—"H. A. S.," Whatcom Co., W. T. The terms quarter, third, or half pitch, mean that the hight of the peak of the roof is as far above the level of the plate as a quarter, third, or half the width of the building. Thus, if a building is 24 feet wide, a rise of 8 feet perpendicular in the roof will be one-third pitch, and the length of the rafter is easily found by the well known rule of mathematics, viz., the length of the diagonal is equal to the square root of the sum of the squares of the two sides.

**Barley or Oats.**—"C. B. H.," Perry, N.Y. Barley weighs 48 or more lbs. to the bushel, oats, 32 or less; the husk of oats is 15 to 20 per cent of the weight, and it is poor in nutritious quality. Consequently barley should be worth at least 50 cents for feed, when oats are worth 30.

**When to use the Roller.**—"H." The roller is used for compacting the soil about the seed, and for breaking the lumps. The ground should therefore be rolled, either before the seed is sown, or immediately after it. Generally it is used after the seed is sown, as a last finish to the surface. To roll a field after the seed has grown, and the crop is above the surface, would not be beneficial.

**To Protect Animals from Flies.**—The plague of flies has come down from historic times, and re-appears annually. These pests are nearly everywhere. They worry the horses in the fields, deprive them of rest at night, and keep them stamping so violently in the stable, that to sleep with an open window if the house is not far off, is nearly impossible; they trouble the cows, and render the milking laborious, and in the house they are intolerable. They most abound in filthy places, and where the scent of decaying matter invites them. Attention to cleanliness would mitigate their attacks upon horses in the field and stable. Washing the sweat from the animals, plentiful use of water and plaster in the stables, or diluted carbolic acid scattered about, and darkened windows, will drive them out of stables. A linen or cotton covering for the horse when at work, will save him and the driver from annoyance. A clean darkened stable for the cows, will have but few flies.

**How to Keep a Cow.**—"C. R. M.," Seneca Co., Ohio. There is no book which is precisely suitable as a hand book for the owner of one cow, although there are several which treat of the management of cows and cattle, but they are too discursive for your purpose.

**Increase in Immigration.**—The unsatisfactory state of affairs abroad, and various circumstances, indicate that a very large number of European farmers are coming to this country,—well-to-do men with considerable, if not large capital. "The States," is known everywhere as the "promised land, flowing with milk and honey." Even those Icelanders who escaped to America from their unstable land, heaved and shaken by volcanic eruptions and earth-quakes, and by virtue of old associations with ice and snow, chose their home in northern Canada, have learned that there is a sunny land in the south, known as "The States." Many of these are pulling up their freshly planted stakes, for a migration across our borders. And this attraction hitherwards, exists in spite of frequently published statements of the "oppressive labor;" "the hard fare;" the "hugger-mugger life," "and the wretched diet of American farmers and laborers." This sounds amusing to us, who see "the rest of the world," pouring its dissatisfied millions upon our continent, anxious to share our comforts, our land, and our varied wealth.

**"Doctoring Horses."**—"G. W. M.," Gibson Co., Ind. Horses or other animals, if well taken care of, need very little or no physicing or doctoring. The less of this, the better, if care is taken to prevent trouble, by good regular feed, and attention, and no over driving. "Tellor's Diseases of Live Stock" gives ample directions for preparing and administering medicines, in which Law's "Veterinary Adviser" is deficient. By washing the horses with carbolic soap suds, and letting this dry on the skin, the attacks of the Buffalo Gnat will be prevented. There is nothing else better for giving a horse an injection, than a pig's bladder, with an elder wood tube, one inch in diameter; this should be made smooth and well oiled, before it is used.

**To Prevent Horses Gnawing Feed Troughs.**—"E. H.," Springfield, Ohio, writes: "Try painting the troughs and adjacent woodwork with tar; it seems a perfect remedy."—We have covered the edges of the troughs and of the exposed parts of the stall with sheet zinc; this *is* a perfect remedy; the horses let it severely alone, after having completely destroyed a set of white oak troughs thoroughly soaked with tar. It is rather costly, but is cheap in the end. Sheet iron would be cheaper and probably equally effective.

**Orchard-Grass.**—"J. H. C.," Ashtabula Co., Ohio. Orchard-Grass is very valuable; for some uses it surpasses Timothy. It is earlier, grows better in the shade, makes a fuller and quicker growth after cutting, and is leafy and makes good and nutritious hay, if cut when young. It should be sown thick; 40 lbs. of seed in the chaff, is sufficient for an acre with 10 lbs. of Red Clover. It will grow well in an orchard and in open woods.

**Jersey Herd Books.**—"Texas." There are two Jersey herd books; one is the Jersey Cattle Club Herd Record, and the other is, we believe, an older record than that. The prevailing colors among Jersey cattle is fawn and white; steel gray or mouse-color, with black points, is a recent fashion, and there are animals with some black on them. A good Jersey may be of any color.

**Self-Binding Harvesters.**—"D. J.," Perquimons Co., N. C. A self-binding harvestor is made by the Champion Reaper and Mower Co., whose business notice was conspicuously set forth in our advertising columns in June. This binder uses twine instead of wire, as do some others, which are objected to on that account.

**Information about Seeds and Crops.**—"W. T. D.," and others. In the Hints about work given every month, we try to meet most of the questions that are constantly arising as to quantities of seed, time for sowing, and general management of crops. These hints are timely, and being drawn from actual experience on the farm, and in the orchard and garden, will be found useful. In the Hints for this month, will be found remarks about sowing millet, buckwheat, and turnips, all seasonable information.

**Steel Bits.**—"L. A. N.," Cleveland, Ohio. The steel bits are made by Crane & Co., Newark, N. J. These are really solid steel bits, being manufactured with great care to prevent any weakness or flaws in them, and are perfectly safe for any horse.

**The Plague of Gophers.**—"J. S. S. P.," Benton Co., Oregon, writes, that his crop of wheat last year promised him a handsome return, but just as the grain was in the milk, the gophers came, and, by the time for cutting, it was a total loss—the few spots left not paying for the labor of harvesting. After passing through his field, the gophers made their winter quarters near by, and in March last began their work upon the young crop, taking all before them. Consequently Mr. P. was obliged to be after them every day, and up to May 20th he had killed 225. The pelts he tans with the fur on, and the carcasses are used to fertilize his garden. Mr. P. fails to say *how* he killed them; others may wish to know. We hope his industry may be rewarded by a good crop.

**Live-for-ever as a Weed.**—In old gardens there is sometimes found the Garden Orpine, (*Sedum Telephium*), more frequently called "Live-for-ever," and sometimes "Aaron's Rod." If a stem be hung up against the window, or in a light place, it will go on and grow and bloom, its thick succulent leaves and stems containing a sufficient store of food to continue the growth. Unfortunately this garden curiosity has, in many places, escaped and become a weed, and a weed that has come to stay. No ordinary treatment will kill it. A friend, whose grounds are sadly infested, called a few days ago for suggestions; he had tried grubbing only to increase the trouble, every bit of root becoming a plant. We advised him to cut the plants off even with the ground, and to put every bit upon the brush heap and burn it. Then to lay over the roots a heavy mulch of whatever was at hand, bog-hay, straw, tan-bark, saw-dust, whatever would so cover the roots that new shoots, should they start, could not reach the light. We feel sure that this thoroughly done must succeed. If any of our readers have had experience in exterminating this rapidly increasing weed, we hope they will give others the benefit of it.

**Building Boats.**—"G. S. V.," Oswego, Kansas. Full directions for building a lap-streak boat with ribs were given in the *American Agriculturist* for October, 1872. This and any other number can be had for 15 cts.

**Profit in Sheep.**—"J. F. H.," Macon Co., Mo. There is probably more profit in sheep just now than in any other farm stock. Wool is low, but in proportion to other farm produce the price is good,—30 to 35 cents a pound for wool now, is far better than the same price 10 or 12 years ago, when other things were more than double the present rates. Live sheep are higher now than they have been for years. A well kept flock will pay.

**Disease of the Liver in Poultry.**—Dr. J. B. Moore, Washington, writes that he has found 2 grain doses of "Blue Pill" ("Blue Mass") given every 24 hours for several days in succession, to cure the so-called chicken cholera, and the similar disease in turkeys. This disease does not, as generally supposed, exist in the bowels, but is a blood disorder originating in the liver, and is akin to the hog cholera; it doubtless springs from similar causes. Dr. Moore states that he has had favorable reports from persons who have used this remedy.

**The Millers' National Association.**—Association, as a means of self protection, is adopted by almost every staple industry (curiously excepting agriculture), as providing means for self protection and assistance. The Millers have State Associations, and a National one was recently held at Chicago. The proceedings of the Association were marked by an evident community of interests between it and the farmers. This was shown, in one way, by the liberal ideas expressed in regard to seed wheat. The feeling expressed by the Association was, that millers should assist farmers in every possible way to procure the best seed wheat, and furnish it to them at cost. An Indiana miller stated that he had given out 300 bushels of Mediterranean seed wheat the present season at 5 cents a bushel over cost, to pay for handling. This is an important matter to consider before the next seed time arrives. It is certainly as much to the farmer's advantage to procure seed of varieties that are the most salable, as it is to the benefit of the millers to procure the best flouring wheat. A mutual understanding would be beneficial to both parties.

**Poultry-Keeping for Profit.**—"A Reader," New York. It would not be wise for an inexperienced person to begin poultry-keeping for profit with several hundred fowls at the outset. The probability is, that he would have too much on his hands and would fail. This has been the common experience, and every successful case within our knowledge has grown up from small beginning. Learn to succeed with a few, and then enlarge the business as experience is gained.

**How to Fertilize a Poor Spot.**—If there is a poor spot in a pasture field, it may be fertilized by placing a lump of rock salt there, under a shelter, and turning sheep into the field and feeding them a few ounces each of cotton-seed meal daily. The sheep will gather about the salt and leave a large share of manure there.

**Garget or Caked Udder.**—"B. W.," Vernon, Conn. Garget may be very easily prevented. A week or more before the time for calving, the condition of the udder should be closely watched. If it becomes full of milk, and is inclined to be hard, draw the milk and relieve the udder. Feed the cow sparingly, and if in good flesh, give only dry hay. If there is any fever, and the udder is hard and hot, one ounce of saltpeter may be given. When the calf is dropped the cow should be milked, and the milking should be frequent; the calf may be permitted to suck on the off side while the milk is drawn by hand on the near side. This will prevent the cow from keeping up her milk. The feed should be light for a week, and until danger is past, when it may be increased gradually. The remedy consists in reducing the feed, giving a dose of salts (12 oz.) and 1 ounce of saltpeter afterwards, bathing the udder in warm water, and drawing the milk with a tube, or injecting a little soda dissolved in water if the milk is hardened in the udder.

**Farm Engines.**—"T. T. F.," Nashville, Ohio. The power of a vertical engine is equal to that of a horizontal one, if it is equally well made; the vertical engine occupies but little room. There are many kinds of engines mentioned in our advertising columns, all of which are made by responsible manufacturers, and we can not say which is the best of them.

**Packing Eggs.**—"A. T.," St. Jo, Mo. There is no secret in packing eggs. The material used is "milk of lime," which is another name for whitewash, and is prepared precisely as for whitewashing. The fresh eggs are packed in a barrel, and the lime-wash, well stirred and then strained, is poured over them. The eggs must be fresh when packed, and must be kept in a cool place.

**Patent Method of Spaying Cows.**—"J. A.," W. T. There are quacks abroad who pretend to spay cows by some secret processes or by the use of an injection. There are no known methods of preventing cows from breeding, but the old and common one of removing the ovaries. Any person who may be induced to pay $5 for any other method, patented or not, will lose his money, unless he values the experience.

**Stomach Staggers, or Congestion of the Brain.**—"H. C. N.," Freeborn Co., Minn. Long continued indigestion frequently acts upon the brain and produces congestion, with convulsions or paralysis. The symptoms most common are sleepiness, stupidity, shaking and swaying of the head, irregular motion when walking or running, and occasionally frantic actions of the limbs or insane and violent frenzy. The bowels are constipated and a cough is often present. The proper treatment is to relieve the bowels by active purging, by giving a quart of linseed oil, and to relieve the brain by applying cold water or pounded ice to the head. The food should be changed, and only that which is soft, laxative, and easily digested, be given.

**To Learn Caponizing.**—"B. S. W.," Woodlawn, Conn. There is no difficulty in learning the art of making capons with the directions given recently in the *American Agriculturist*, and with the instruments there described. To begin, kill a young cockerel for the table, and then follow the directions; the bird can be used afterwards and will not be lost. If the attempt is not satisfactory, try again until sufficient confidence is gained to practice on a living bird. After three or four attempts, one will usually be able to make a successful operation.

**Gastric Irritation and Vomiting in Cattle.**—"W. L. S.," Black Hawk, La. Vomiting, which is rare with cattle, is a symptom of gastric irritation, which may occur from various causes. Poisonous herbage, indigestion, or nervous disorder may each cause the trouble. To treat the difficulty the cause should be discovered; if the origin is in the stomach, as is probable, laxative and soothing drinks may be given, such as well boiled oatmeal or linseed-meal gruel. If there is a large collection of gas in the stomach, that should be discharged by the use of the trochar, or by the administration of half-ounce doses of Carbonate of Ammonia dissolved in water, and given three or four times a day.

**"Hoof Oil."**—"D. M.," Chicago. The best hoof dressing is pure glycerine. Crude petroleum dries the hoof and makes it brittle. Whenever hoofs are washed they should be dressed with glycerine.

**Cost of Raising Pigs.**—"G. P.," Brooklyn, N. Y. A very good estimate of the cost of producing pork may be made from the value of corn. With well-bred pigs, such as Essex, Berkshire, Poland-China, and Yorkshire, 4½ lbs. of corn will make a pound of pork, and the manure should pay the cost of attention. Where corn is worth half a cent a pound, it is manifest that pork may be produced at half the cost of that where corn is worth one cent a pound; excepting the disadvantage arising from distance from market, and the freight which has to be added to the cost of the cheaper pork.

**Nervousness in Cows.**—"J. H. D.," Adams Co., Ohio. If cows "strain and dribble" during milking, it is no symptom of urinary trouble. Many cows do this. In the writer's dairy of 20 cows, half of them do this, which is only done through nervousness and by nervous sympathy of the urinary organs with the udder, while the milk is being drawn.

**Liming Sheep Skins and Pulling Wool.**—"J. C., Jr.," Bethlehem, Pa. Sheep skins should be soaked in water 24 hours before putting on the lime. The lime is slaked and made into a paste, which is spread upon the flesh side of a skin, a second skin is laid upon the first with the flesh side upon the lime; and others are laid upon these in pairs with lime between the two flesh sides, so as to form a stack, in which they undergo a sweating. In this condition they remain for 24 hours, when the wool can be easily pulled from the skin. The quantity pulled depends upon the kind of fleece, and varies from 2 to 6 pounds, or sometimes more.

**Mooley or Polled Cattle.**—"H.," Richmond, Va. "Mooley" is a term used chiefly by the Irish to designate hornless cattle. Polled is the proper word. It has been customary among Irish and some English drovers to poll their beef cattle, to get rid of the objectionable horns, and to cause them to be more quiet feeders. The advantages of this practice has led to the encouragement of naturally polled cattle, and this class of beasts has been greatly improved of late years, until there are two hornless breeds of beef cattle, the Angus and Galloway, and one of milking cattle, the Norfolk (and Suffolk). It would doubtless be an advantage economically to get rid of all horns; but the public taste has not yet been educated so far as that.

**White Specks in Butter.**—"T. W. W.," Hudson, Mich. White specks in butter may be caused in several ways. Some milk may remain when the butter is worked. The cream may have been kept too long, and curdled milk be gathered in the butter; impure salt will cause the defect, and in some cases the milk itself is to blame. Some cows give milk from which good butter never can be made. It is proper to discover the true cause before trying a remedy.

**A Cow not to be Bred from.**—"J. P. J.," Ashtabula, Ohio. A cow that has any weakness of the generative organs, is not fit for a breeder. Tendency to garget is a positive objection in this respect. Strong progeny can not be expected from defective cows.

**Cooling Milk.**—Milk cannot be safely carried any considerable distance in the hot weather without previous cooling. Where there is a deep, cool well, or a cool spring, the cans may be let down into the water and the milk stirred until it is cooled down to 50 degrees. A box may then be provided into which the cans may be placed with ice around them, mixed with cut hay or straw chaff to absorb the water as the ice melts.

**Lumber for Milk Rooms.**—"P. B. P.," Dutchess Co., N. Y. Pine should not be used for building a milk room, on account of its odor. That will pass off in time, and will be much lessened by plastering; hemlock or spruce, being odorless when seasoned, are far better. A good milk house may be made by lathing and plastering outside as well as inside, the outside plastering being made with stucco or hydraulic lime cement, and painted with "Asbestos" or similar paint.

**Preserving Manure.**—"C. T. K.," Montgomery Co., Pa. When it is desired to keep manure for a time for future use, it should be heaped in flat low piles, exposed to the rain, which will keep it moist. With sufficient moisture, and when packed close by treading, it decomposes slowly, and may be kept six months with benefit. There is no necessity to put earth nor anything else upon it, as there will be no appreciable waste, except in weight, which loss consists chiefly in water and carbonic acid. Fresh manure may be spread upon the surface at any time during the winter, or used as top-dressing at any other time without serious loss.

**Well Educated Girls.**—The St. Paul "Pioneer Press" is responsible for the following, which, so far as the education is concerned, is a good advertisement enough to fill the halls of the college named to more than overflowing, even if the incentive of the last sentence were omitted, and to that sentence might be added that when *such* young ladies have the "yes" or "no" to say, none but *good* men need apply. We quote: "At the Iowa Agricultural College every girl in the Junior Class has learned how to make good bread, weighing and measuring her ingredients, mixing, kneading, and baking, and regulating her fire. Each has also been taught to make yeast and bake biscuits, puddings, pies, and cake of various kinds; how to cook a roast, broil a steak, and make a fragrant cup of coffee; how to stuff and roast a turkey, make oyster soup, prepare stock for other soups, steam and mash potatoes so that they will melt in the mouth, and, in short, to get up a first-class meal, combining both substantial and fancy dishes, in good style. Theory and manual skill have gone hand in hand. Vast stores of learning have been accumulated in the arts of canning, preserving, and pickling fruits, and they have taken practical lessons in all the details of household management, such as house-furnishing, care of beds and bedding, washing and ironing, care of the sick, care of children, etc. The girls, we are informed, are also thoroughly grounded in science, mathematics, and English literature; but this is of slight moment compared with the foregoing catalogue of virtues. If there is anything that challenges the unlimited respect and devotion of the masculine mind, it is ability in woman to order well her own household. Each one of these Iowa girls, it is safe to say, will marry within six weeks after graduation."

## Nuts and Nubbins.

A button is a small event which is always coming off.

What ship has two mates and no captain? A courtship.

A man who is good company for himself is always good company for others.

If you don't want to be robbed of your good name, do not have it printed on your umbrella.

The woman that maketh a good pudding in silence is better than she who maketh a tart reply.

Square umbrellas are reported as the latest things in Paris. *Ours* are never round—when wanted.

Josh Billings says: "There is no perfect substitute for wisdom, but silence is the best yet discovered."

It is said that mosquitoes are bred upon the waters. In that case they will return again before many days.

"Tommy, my son, what is longitude?"—"A clothesline, papa."—"Prove it, my son."—"Because it stretches from pole to pole."

A venerable parent about to purchase a piano for his daughter, asked the agent if he hadn't one with a handle in the end, "so we can all give it a turn once in a while."

Philosophers say that shutting the eyes makes the sense of hearing more acute. A wag says that this accounts for the many closed eyes that are to be seen in church.

Father to sleepy boy—"Come, James, you ought to be up with the lark on such a beautiful morning." Matter-of-fact boy—"That's all right, but how'm I goin' to get up there?"

Accomplishments. Aunt Florence: "And can you read yet, Ruth?"—Ruth: "I should think so, indeed! and I know geography, and history, and sums, and I've got two second teeth."

"My dear," said a wife to her husband, "I really think it is time we had a greenhouse."—"Well, my love, paint it any color you please—red, white, or green will suit me," responded the husband.

Boots of the thirteenth century are occasionally dug up in London, with skeletons of cats. The relative positions of the boots and cats show that the ancients were not much better at aiming than we of to-day are.

A sceptic, who was badgering a simple-minded old man about a miracle and Balaam's ass, finally said: "How is it possible for an ass to talk like a man?"—"Well," replied the honest old believer, with meaning emphasis, "I don't see why it ain't as easy for an ass to talk like a man as it is for a man to talk like an ass."

At a funeral in Ireland, the clergyman had not been informed of the sex of the deceased. He accordingly leaned over to the sexton, and said: "Shall I say 'brother' or 'sister' here departed."—"It's neither, sir," whispered the man; "shure it was only an acquaintance!"

A young lady hesitating for a word in describing the character of a young man who had displeased her said, "He is not a tyrant, not exactly domineering, but—"—"Dogmatic" suggested her friend.—"No, he has not dignity enough for that; I think pupmatic would convey my meaning admirably."

This is a boy's composition on girls: "Girls are the only folks that has their own way every time. Girls is of several thousand kinds, and sometimes one girl can be like several thousand girls if she wants to do anything. This is all I know about girls, and father says the less I know about them the better off I am."

Some of the carts and drays for the large city establishments are elegantly decorated, and they often bear names, such as "Little Mary," "Ready Boy," etc. The other day we saw a name which, divided up by slats on the headboard, was rather puzzling; it appeared thus: PICK | LEB | LOS | SOM. The sign on the side of a large Preserving and Pickling house gives a help to this unintentional puzzle.

In one of the English colonies a competitive examination was lately held for the purpose of appointing fit persons to some of the government offices. One of the candidates inadvertently spelled the word Venice with two n's thus, Vennice. The examiner, a clever man, but not always a correct speaker, sternly inquired, "Do you know, sir, that there is but one hen in Venice?"—"Then eggs must be scarce there," was the ready reply. The candidate passed.

"Ah, yes, my son," said Mr. Smilly, as he was strolling under the moonlit heavens the other evening, "there are a great many wonderful things in the firmament; for instance, there is the constellation of the 'great bear,' which is so beautifully mixed up with the 'dipper' that you always have to remember that the tail of the dipper is the handle of the bear, in order to tell the other from which."

Shoot High.—A ready-made clothes peddler complained to one of our Generals at the West that the redskins had killed his son "Shakop," and worse than all, had stolen 12 pairs of his pants. The general told him that as soon as he catched up with the demons he would stop their deviltries for good and all.—"Yes, I know, Sheneral, I know," eagerly whispered the clothing dealer, "dot's all right, but ven you come up mit dose Indians vot got dose new pants on, for kracious sake, Seheneral, tole de soldiers to shoot high!"

Some time ago there was a dancing party given in a certain neighborhood in Texas, and most of the ladies present brought their babies, whose noisy perversity required too much attention to permit the mothers to enjoy the dance. A number of gallant young men volunteered to mind the young ones while the parents indulged in an old Virginia breakdown. No sooner had the women left the babies than their volunteer nurses changed their clothes, giving the apparel of one to another. The dance over, it was time to go home, and the mothers hurriedly took each a baby in a dress of her own, and started, some to their homes ten or fifteen miles off, and were far on their way before daylight. But the day following there was a tremendous uproar in the settlement; mothers discovered that a single night had changed the sex of their babies; and then commenced the liveliest pedestrianism; living miles apart, it required two or three days for the parents to unmix the babies, and as many months to restore them to their natural sweet dispositions. To this day it is unsafe for any of the baby mixers to venture into the neighborhood.

A little fellow began to maul and tease the family cat, in the blind hope of turning her into the maul-tease variety.

A true woman loveth flowers—the kind the new spring bonnets are trimmed with.

"Two for a scent," as the drug clerk said when a young couple entered the store and asked for a bottle of cologne.

Mrs. Partington says that the only way to prevent steamboat explosions is to make engineers bile the water on shore.

There is many a man strong enough to hold a bull by the horns, and yet not strong enough to hold his own tongue.

A country paper says: "A child was run over by a wagon three years old, and cross-eyed, with pantalets on."

"Why, Willie," said his mother at dinner, "you can't possibly eat another plate of pudding, can you?"—"Oh, yes, I can, ma; one more plate will just fill the Bill."

"Love is an internal transport!" exclaimed an enthusiastic poet. "So is a canal-boat," said a practical old forwarding merchant.

"Pa," said a little four-year-old, "there's a poor man out there that would give anything to see you."—"Who is it, my son?"—"It is a blind man."

Counsel to witness—"You're a nice sort of fellow, you are!" Witness—"I'd say the some thing of you, sir, only I'm on my oath."

An old fellow reading a newspaper headline, "War against the Afghans," said he was glad of it; he never did like "them circus blankets."

"What," said an inquisitive young lady, "is the most popular color for a bride?" We may be a little particular in such matters, but we should prefer white.

It is said that afternoon marriages are the present style in England. Can't be. There never was a marriage before Eve. What, never? No never!!

A coroner's verdict reads thus: "The deceased came to his death by excessive drinking, producing apoplexy in the minds of the Jury."

The "Saratogian" tells of a clergyman at the recent conference who saw the placard, "Leave your dog outside," and tried to purchase a dog in order to comply with the regulations.

Mrs. Partington Again.—"Poor man!" said the old lady; "and so he's really gone at last! Ninety-eight, was he? Dear! dear! to think how that if he'd lived two years more he'd have been a centurion."

In struggling to make a dull-brained boy understand what conscience is, a teacher finally asked, "What makes you feel uncomfortable after you have done wrong?"—"Father's leather strap," feelingly replied the boy.

"O, granny!" cried little Tommy at the top of his voice, "I just seen the biggest ant! It couldn't begin to get inter that door." Granny was duly excited, but not so much as when Tommy told her it was an eleph-ant.

A widow, intending to succeed her husband in the management of an hotel, advertised that "the hotel will be kept by the widow of the former landlord, Mr. Brown, who died last summer on a new and improved plan."

An exchange prints fourteen rules for spoiling a child—and the quickest and most certain rule is omitted. If you want to spoil a child, give the youngster a didn't-know-it-was-loaded pistol to play with. It goes right to the spot.

A boy from New York went into the country visiting. He had a bowl of bread and milk. He tasted it, and then hesitated a moment, when his mother asked him if he didn't like it, to which he replied, smacking his lips; "Yes, ma, I was wishing our milkman would keep a cow."

Miss Susan King recently saw the following advertisement in a country newspaper: "How to get Rich—A rare secret—Send twenty-five cents to George Fullerton, box 413, Portland, Me." Prompted by curiosity, she forwarded the money and received the following reply: "Work night and day and never spend a cent."

A GREAT MYSTERY EXPLAINED.—"Why does lightning so rarely strike twice in the same place?" Prof. Wortman asked the new boy in the class in Natural Philosophy.—"Huh," said the new boy, "it never needs to." And it is a little singular that nobody had thought of that reason before.

Mrs. Shoddy's views are interesting to those who are thinking about keeping a carriage. She says that she has thought it all over, and come to the conclusion that brooches are a'most too large, that these 'ere coupons are too shut up, but that a nice stylish pony phantom seems to be the thing.

The editor of a backwoods paper is reported to have discovered a New Testament on his desk the other day. He at once wrote an elaborate review of it, and was very much disappointed when the foreman brought his copy back and told him it was not a new book.

"Gentlemen of the jury," said an Irish barrister, "it will be for you to say whether this defendant shall be allowed to come into court with unblushing footsteps, with the cloak of hypocrisy in his mouth, and draw three bullocks out of my client's pocket with impunity."

Mrs. Dunshudder fed a tramp yesterday, because he wore an old army coat of faded blue.—"You went through the war?' said the sympathetic soul.—"Yes'm; I was a drummer," and when the fellow reached the sidewalk he concluded the sentence, "for a hardware store in Chicago."

The last man will have an awfully lonesome time of it. Nobody to borrow money of; nobody to dun him or raise his rent; no gas meter to make things lively; no book agents; no life insurance man, and no oldest inhabitants to declare that it is the most remarkable weather we have ever had.

Bookseller—"What sort of books do you want, sir?" Baggs—"O, such books as a gentleman generally has!" Bookseller—"And how many?" Baggs—"Wal, my liberery is twelve by fifteen, and I want it full." Bookseller—"Will you have them bound in Russia or Moroeco?" Baggs—"O, don't send so far! Have them bound in London."

He has broken his promise to marry the girl, and her father wanted a money consideration to help heal a wounded heart. The young man said he would consider a reasonable proposition. "Well then," said the irate father, who was seeking justice for his daughter, "young man, how does a dollar and a half strike you!"

A short time ago a little boy went with his father to see a colt. He patted the colt's head and made quite a fuss over it, until finally the stable-man told him to be careful that the colt did not turn round and kick him. When the little chap went home his mother asked him what he thought about the colt. "I like him pretty well," was the reply. "He's real tame in the front, but he's awful wild behind."

The class in Natural History were being put through the facings, and to show their knowledge the pedagogue went a little aside from the text-book and asked where *down* came from. There was an awful pause for a few minutes, which was finally broken by a little four-foot-nothing with, "They get it in the ground."—"In the gronnd! How's that?"—"Why down in a coal mine, sir."

Milliner (to Captain, who has been buying a hat for his wife)—"Tell your wife, if she wants it dressy, to put a panache of six feathers poised high on one side, with feathers curling forward, place a lizard or beetle to hold it, and put another lizard on the band that covers the curtain. That's easy to remember." The Captain (to his wife)—"She said, if you wanted it dressed up, to put a pancake and sixteen poisoned feathers curled up forrid, clap on some lizards and beetles to belay them with, and cover the lizard on the band with your curtains."

One of the secretaries of a Church Missionary Society, a distinguished man, was about to preach to a colored congregation, when he was introduced by the regular minister of the church, a black man, in these words: "Now den, bruddun, I'se heah to infoi'm you dat Bruddah Blank is gwine to preach to you to-day. He is de Seccatary of de Missionary Society, a distinguished an' a eloquent man—in fac', my bruddun, he is a soundin' brass, an' a tinklin' cymbal."

Snodgrass loaned Smith his scythe sharpener three or four months ago, and the home that once knew that scythe sharpener now knoweth it no more. Meeting Smith the other day, says Snodgrass: "Smith, firearms are dangerous things, very dangerous; even a scythe rifle will go off." Smith said, "He, he," but he didn't look a bit pleasant. When he got home he threw himself in a chair and his cane at the cat, and said he: "I'll never borrow another thing of that Snodgrass if I live a hundred years." And he never will.

A stranger sat in a corner of the car hence to Boston in easy attitude, his feet upon a large black trunk. The gentlemanly conductor, going his rounds, at the first station politely informed the stranger that the trunk must be put in the baggage car. To which the stranger nothing replied. At the second station the displeased conductor more decidedly told the stranger that he must put the trunk in the baggage car. To which the stranger nothing replied. At the third station the vexed conductor more imperatively told the stranger that he must put the trunk in the baggage car, or it would be put off the train. To which the stranger nothing replied. At the fourth station the irate conductor had the trunk put off and left. At the fifth station the mollified conductor, addressing the stranger, begged him to remember that he but did what his duty required, and that he had only did it after repeated warnings, and that it was solely the stranger's fault. To which the stranger laconically replied: "Don't eare; 'taint my trunk!"

**The Cattle Contagion.**—Pleuro-pneumonia, or Lung Fever, is a serious contagious disease, which now prevails more or less among the cattle of the Middle and Atlantic States, extending from Connecticut to North Carolina. The region thus covered contains over 6,000,000 head of cattle, and much of the fine blooded stock of the country. This malady can be extirpated—as the history of its former outbreaks teaches—but only by vigorous and united measures. The Health Officers of New York, New Jersey, and Pennsylvania, are working in union, and a strict quarantine of the infected herds, and the killing of all diseased cattle is demanded by them. As fresh outbreaks occur from time to time, in quarters where least expected, a thorough inspection of all herds in the East should be made. While the three northern States mentioned, are active in the extermination of the pleuro-pneumonia, Delaware, Virginia, Maryland, and North Carolina are doing little or nothing in this direction. There are 35,000,000 head of cattle west of the Alleghanies, and should diseased cattle be taken from the east into the vast herds of the prairies and plains, as may be done at any time, an untold destruction of property might result. We are pleased to see that the United States Senate has passed a bill providing—though in a very incomplete and unsatisfactory manner—for the prevention of the spread of contagious diseases among live-stock, and that $25,000 is appropriated for that purpose. The first thing to be done is to quarantine all diseased or suspicious stock—first confine the disease, and then destroy it by destroying the animals.

**Exclusive Control of Plants.**—A friend in Howard Co., Md., writes that last fall he purchased of a person claiming to represent a certain nursery, plants of the strawberry, "Sharpless' Seedling." This party represented that they had the whole control of the sale of this variety, and that all others offered as that, could not be true to name. This season there comes another person, claiming to represent a nursery in Western New York, and one of the best known in the country. Agent No. 2 solicited orders for the "Sharpless," asserting that *his* nursery had exclusive control, and that no others could supply the plants true to name. Our friend is in trouble, would like to know who has the true "Sharpless," and properly thinks it hard that he should buy a few plants at a high price, propagate them to get a supply to set out a bed, and then learn that he has not the true kind—and we quite agree with him. Our friend's mistake was in buying of a travelling agent at all, unless he had the most positive proof that he did represent the nursery as claimed, and that the plants would be sent directly to him by the proprietors thereof. There is much risk in dealing with these "agents;" there are some honest men in the business, but the proportion of these to the dishonest is so very small, that in this land of mails and express companies, there is no possible reason why the dealings should not be *directly with the proprietors* of the nursery. As to the exclusive control of a plant—when one claims this, it is safe to regard him with caution, if not suspicion. The name of the nursery from which the plants are said to have come, is not given; but that of the second one is, and we run no risk in saying that if the "agent" claimed that this nursery had exclusive control of the "Sharpless," he did so on his own account. The proprietors of the nursery, being men of high character, could not make such a claim, as they know it is not true, and more than that, they know that we know, and that many others know, that it is not true. Our Maryland friend and others may be sure that, if a plant is worth having, it can be had without running the risks that attend dealing with agents. As to the "Sharpless" it may be had of a dozen or more dealers, who have a business reputation at stake, and who on this account—let alone any higher motive—could not commit the folly of sending out a plant that they did not *know* to be true to name. Caution and a careful reading of our advertising pages would save many troubles of this kind.

**Mineral for a Name.**—A soft black shining mineral comes from "F. L.," Southport, Ct. It is easily broken up into small scales, which have the brilliancy of polished steel. It is only a form of a very common ore of iron, which mineralogists call *Hematite*, and it is one of the valuable ores for producing iron. As it splits up into thin plates like mica, is called micaceous iron. It is sometimes used in fancy work; being broken up fine, it is sprinkled upon articles that have been coated with mucilage; when that dries, the scales of micaceous iron stick fast, and give the article a very pretty appearance.

**A Handy Book,** for its special object, and for many others, is the "*Right Hand Record and Ready Reference for Leading Advertisers*," issued by H. P. Hubbard, the Advertising Agent of New Haven, Conn. The principal cities and villages having newspapers, are given alphabetically, for the States, Territories, and British America; the population of each according to the last census; also the estimated circulation of each newspaper, except the "coöperative" ones, which are arranged together at the end of the book. The work has a popular interest, therefore, aside from its utility to advertisers. For these, a blank space is provided against each paper, for inserting advertising orders.

**Feeding Calves.**—Every stock raiser and farmer should know the importance of good care and the proper treatment to a calf during the first few months of its life. The greatest profit comes from full and judicious feeding during what is the natural period of suckling. But the natural method is not the most profitable to the owner of the calf. The milk which the cow gives is, almost everywhere, worth more than the calf would be were it allowed to feed upon it. The question then is, what shall we feed the calf? The pure, fresh milk from the cow is what it would naturally have, therefore it's food should be similar to that in composition, but less in its market value. In most cases it must be put upon skim milk as the next best food. This lacks the cream of the pure milk; it is milk less a large part of its oily element. If we can restore this oil from another and a cheaper source, we, in a good measure, restore the milk to the calf. This can be done by using linseed meal, of which a half a pint should be mixed with a gallon of the skim milk. During the first few days the young calf should have the milk as it comes from the cow and may be allowed to get it the natural way; after this it is to be weaned and the change from the first milk to the warm skim milk begun. This change should be gradual and not completely made until several weeks have elapsed.

**Coloring Mosses.**—One of our friends in Washington Territory ask how to color moss. Though the color is not stated, we assume it to be green. Moss is used in various kinds of ornamental work, but as it dries of a dull faded color, it must be dyed to give a lively tint. Large quantities of dyed moss are imported for use in artificial flower making and other fancy work. A correspondent, whose other recipes we have found to be useful, a long time ago sent us directions for coloring moss. One of these is to dissolve in two quarts of boiling water two ounces of alum and one ounce of tincture of Indigo Carmine, making the solution in a glazed vessel. The moss, tied in small bunches and thoroughly cleaned, is immersed in the solution for a few minutes, or until of the proper color. As a cheaper dye, he says: "In two quarts of boiling water dissolve four ounces each of Alum and Celestial Blue, in fine powder, and immerse the moss while the liquid is quite warm." The trouble about these recipes is, that probably there is no demand for these modern dyeing materials away from large cities, and our correspondent would be unable to procure them. Aniline dyes of all colors are put up for family use, and these will no doubt answer for moss. If neither are to be had, let us know, and we will see what can be done.

**Pigeon-berry or Poké in the Garden.**—What is known as "Pigeon-berry" in New England has various other names in different localities, among them are "Poke," "Garget," "Cocum," "Cancer Root," "Skoke," "Skoka," and "Pecatacelleloe"—which last, quite puts to shame its botanical name *Phytolacca decandra*. A few years ago the European papers announced that *Phytolacca* was hardy in Belgium; then one Englishman found it was hardy in his part of England; as soon as this was announced, another Englishman found it was hardy with him; then more Englishmen, not to be out done, found it was hardy in other parts, and at last the fact that "Pigeon-berry" was generally hardy in England was settled. In Europe it is cultivated as an orna-

mental plant; well it may be, for there are few finer objects in early autumn than a large plant of it. Thoreau —we think it was—described its rich ripeness in deserved terms. We should cultivate it, and nurse it, did it come from Japan and cost $5 a root, and no garden would be complete without it. But it is not in the ornamental garden that we would now speak of Poke—to use its shortest name. Whoever has not eaten the tender, just developing shoots of this, dressed as asparagus, or as spinach, has missed one of the choicest of vegetables. It is sometimes compared to asparagus, but it is not like that—it is a thing by itself, and as good in its way as is asparagus in its. Knowing from early youth the great excellence of—must we say it—"Pigeon-berry greens," it has long been in the writer's mind to sometime try what cultivation would do for it. In this, as in other cases, "sometime is no time at all," and the only true way is to carry out such intentions at once. As to the "poke," we have been anticipated. The idea is ours, but some one else has put it in practice, and that some one else is—a lady. We have only imagined how excellent improved Poke must be, but our Illinois correspondent has the advantage of us—she knows it. The lady transplanted young seedlings all along her garden fence; she also had large roots dug up and set out. From these last she says: "We have had the finest, *fattest*, Poke-berry greens ever eaten." In answer to our suggestion that the tops, when mature, would occupy too much room, she writes, that when the plants get well up she has them cut off at 3 or 4 feet, and that this leaves foliage enough to mature the root. Those unacquainted with the use of this plant should understand that only the young shoots are used; these, when they first appear above ground, are as large as ones finger or larger when 6 inches or more high, and before the leaves have developed. While being placed in rich garden soil will greatly increase the size and tenderness of these shoots, the great advantage gained is, being able to cut them when wanted, and not being obliged to hunt for them in the wild state.

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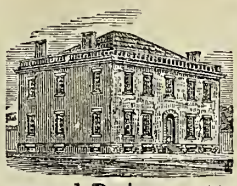

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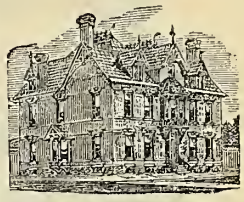

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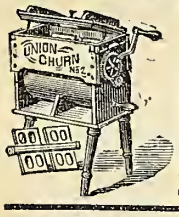


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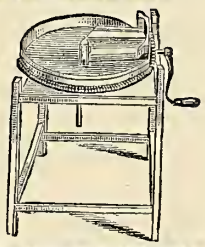

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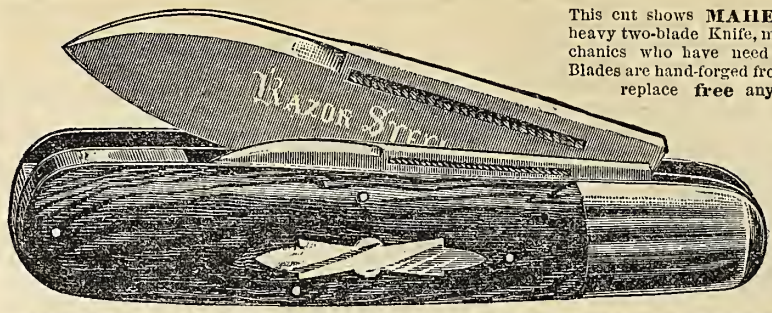


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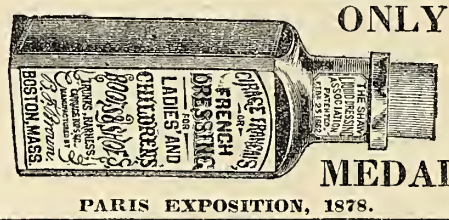


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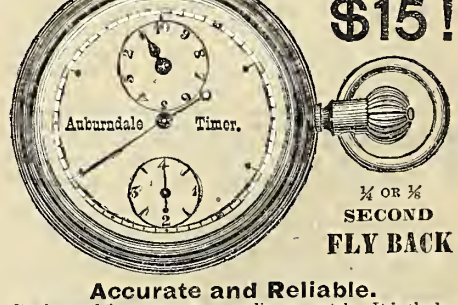


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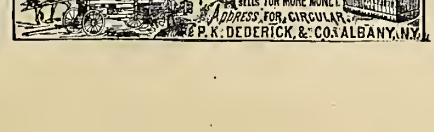


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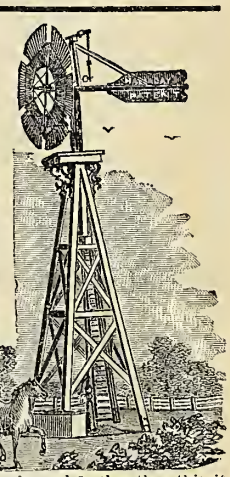

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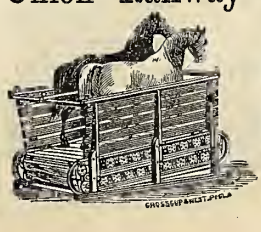

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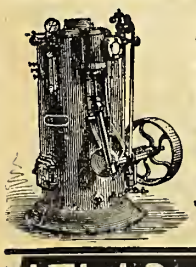

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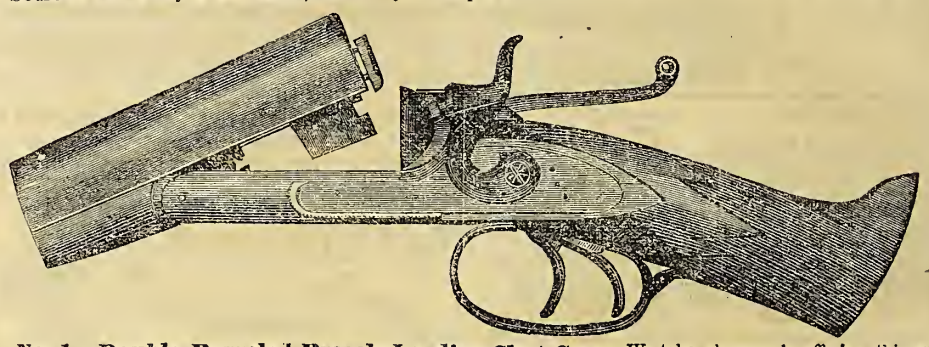

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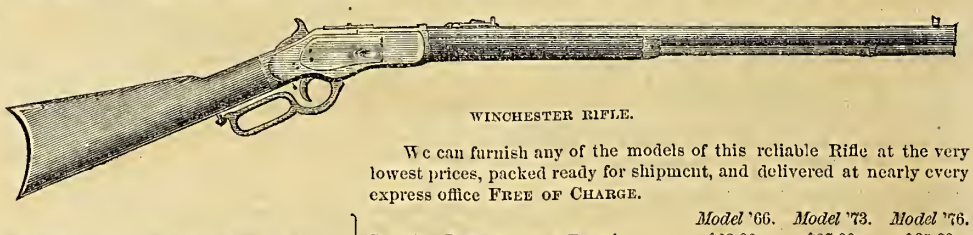

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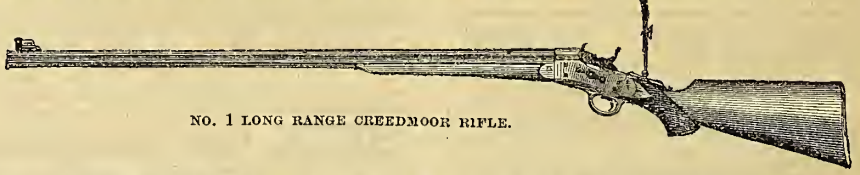

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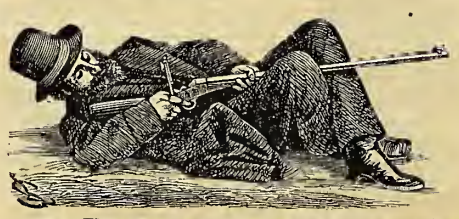

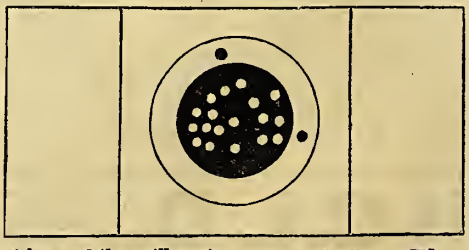

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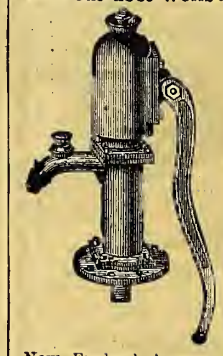

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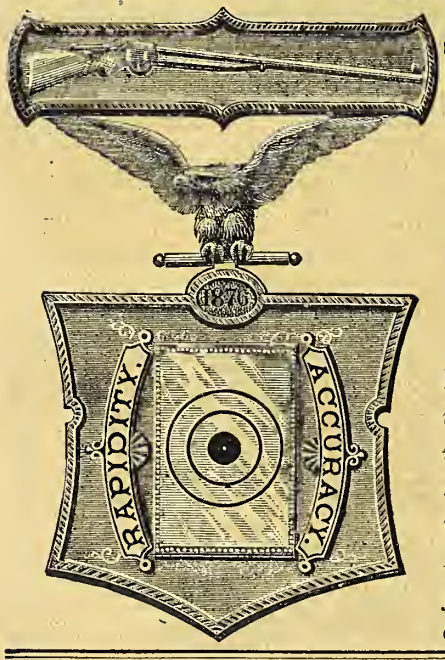


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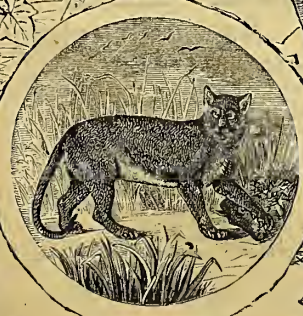

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Success in farming depends almost wholly upon attention to small details. This is true, indeed, of any business, and it is by looking after cents that the dollars are saved, in whatever way we may be working. But in agriculture, in gardening, in fruit growing, and in any other manner of cultivating the soil, attention to details is the chief concern. Neglect for one day, or one hour, may cause a loss which many days' labor may be required to recover. This is exemplified in hundreds of ways during a man's life; and it is a strange thing, that repeated experiences, at the best, are required to fix the fact so firmly upon the mind that it becomes a rule of action with us, a habit, or an impulse, to be careful, and to watch that small things shall receive proper and prompt attention. Perhaps this is more evident with those who have to trust much work to hired men, than to those who are always about their own business. To look after details requires thought, consideration, promptness of decision, constant observation, and a habit of orderly arrangement. In the single item of neglect of tools a considerable loss is made every year. The tools and machines on a farm now represent a large sum of money. A thousand dollars will hardly stock a 100-acre farm with all the needed implements. These will be used up in ten years even with the most careful management, so that the annual cost will be at least $100. But by leaving the implements and machines in the field, to be alternately roasted in the sun and soaked in the rain, or to be covered with dust in an open shed, their useful life is reduced one half. Here is a direct loss of $100 yearly, which could be saved. Perhaps a larger loss still is incurred in neglect of fences. Our illustration points a moral in this way, which speaks for itself. Poor fences are sufficient to absorb the whole of a farmer's profits. There is the loss of property by intrusion; the loss of time in ejecting the intruders; the damage to animals by chasing with dogs, or by the beating or punishing of them by irritated owners; and not the least, the cost of keeping a dog, with all the drawbacks and expenses incident to this, for the purpose of driving trespassing animals out of the fields. The constant worry, fear, and uncertainty, which prevail daily and nightly, preventing comfortable sleep and giving occasion to many nocturnal raids, for the purpose of driving out intruders, should be sufficient, without the loss of property or products of labor, to induce every farmer to take measures for protecting his crops, and to trust for safety to solid and substantial outer fences and well fastened gates, rather than to depend upon the ever-too-late remedy of ejecting trespassers by means of a dog. A well trained dog may do very useful service on a farm, but one can not very well make a fence or a gate of him. In many communities the law presents the best barrier against intruders, by compelling each man to shut in his own animals by building strong fences.

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## Calendar for August, 1879.

| Day of Month. | Day of Week. | *Boston, N. England, N. York State, Michigan, Wisconsin, Iowa, and Oregon.* Sun rises. | Sun sets. | Mo'n rises. | *N. Y. City, Ct., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois.* Sun rises. | Sun sets. | Mo'n rises. | *Washington, Maryland, Virginia, Kentucky, Missouri, and California.* Sun rises. | Sun sets. | Mo'n rises. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | H. M | H. M | H. M. | H. M | H. M | H. M. | H. M | H. M | H. M. |
| 1 | F | 4 52 | 7 20 | rises | 4 56 | 7 16 | rises | 5 1 | 7 11 | rises |
| 2 | S | 4 53 | 7 19 | 7 28 | 4 57 | 7 15 | 7 26 | 5 2 | 7 10 | 7 23 |
| 3 | S | 4 54 | 7 18 | 7 53 | 4 58 | 7 14 | 7 52 | 5 3 | 7 9 | 7 51 |
| 4 | M | 4 55 | 7 16 | 8 15 | 4 59 | 7 12 | 8 15 | 5 4 | 7 8 | 8 15 |
| 5 | T | 4 57 | 7 15 | 8 36 | 5 0 | 7 11 | 8 38 | 5 4 | 7 7 | 8 39 |
| 6 | W | 4 58 | 7 14 | 8 58 | 5 1 | 7 10 | 9 0 | 5 5 | 7 6 | 9 2 |
| 7 | T | 4 59 | 7 18 | 9 22 | 5 2 | 7 9 | 9 24 | 5 6 | 7 5 | 9 23 |
| 8 | F | 5 0 | 7 11 | 9 46 | 5 3 | 7 8 | 9 51 | 5 7 | 7 4 | 9 56 |
| 9 | S | 5 1 | 7 10 | 10 16 | 5 4 | 7 6 | 10 22 | 5 8 | 7 3 | 10 28 |
| 10 | S | 5 2 | 7 9 | 10 52 | 5 5 | 7 5 | 10 58 | 5 9 | 7 1 | 11 5 |
| 11 | M | 5 3 | 7 7 | 11 35 | 5 6 | 7 4 | 11 42 | 5 10 | 7 0 | 11 49 |
| 12 | T | 5 4 | 7 6 | morn | 5 7 | 7 2 | morn | 5 11 | 6 59 | morn |
| 13 | W | 5 5 | 7 4 | 0 26 | 5 8 | 7 1 | 0 33 | 5 12 | 6 58 | 0 40 |
| 14 | T | 5 6 | 7 3 | 1 25 | 5 9 | 7 0 | 1 32 | 5 13 | 6 56 | 1 39 |
| 15 | F | 5 7 | 7 2 | 2 81 | 5 10 | 6 58 | 2 36 | 5 14 | 6 55 | 2 42 |
| 16 | S | 5 8 | 7 0 | 3 40 | 5 11 | 6 57 | 3 44 | 5 14 | 6 54 | 3 49 |
| 17 | S | 5 9 | 6 59 | sets | 5 12 | 6 56 | sets | 5 15 | 6 52 | sets |
| 18 | M | 5 10 | 6 57 | 7 9 | 5 13 | 6 54 | 7 8 | 5 16 | 6 51 | 7 8 |
| 19 | T | 5 11 | 6 56 | 7 34 | 5 14 | 6 53 | 7 34 | 5 17 | 6 50 | 7 35 |
| 20 | W | 5 12 | 6 54 | 7 59 | 5 15 | 6 52 | 8 2 | 5 18 | 6 49 | 8 4 |
| 21 | T | 5 13 | 6 52 | 8 27 | 5 16 | 6 50 | 8 31 | 5 19 | 6 47 | 8 35 |
| 22 | F | 5 15 | 6 51 | 9 0 | 5 17 | 6 48 | 9 5 | 5 20 | 6 46 | 9 10 |
| 23 | S | 5 16 | 6 49 | 9 39 | 5 18 | 6 47 | 9 45 | 5 21 | 6 44 | 9 52 |
| 24 | S | 5 17 | 6 48 | 10 27 | 5 19 | 6 45 | 10 34 | 5 22 | 6 43 | 10 41 |
| 25 | M | 5 18 | 6 46 | 11 25 | 5 20 | 6 44 | 11 32 | 5 23 | 6 41 | 11 39 |
| 26 | T | 5 19 | 6 45 | morn | 5 21 | 6 42 | morn | 5 23 | 6 40 | morn |
| 27 | W | 5 20 | 6 43 | 0 31 | 5 22 | 6 41 | 0 37 | 5 24 | 6 38 | 0 44 |
| 28 | T | 5 21 | 6 41 | 1 41 | 5 23 | 6 39 | 1 47 | 5 25 | 6 37 | 1 53 |
| 29 | F | 5 22 | 6 40 | 2 53 | 5 24 | 6 38 | 2 58 | 5 26 | 6 35 | 3 2 |
| 30 | S | 5 23 | 6 38 | 4 4 | 5 25 | 6 36 | 4 7 | 5 27 | 6 34 | 4 10 |
| 31 | S | 5 24 | 6 36 | rises | 5 26 | 6 34 | rises | 5 28 | 6 32 | rises |

PHASES OF THE MOON.

| MOON. | D. | BOSTON. H. M. | N. YORK. H. M. | WASH'N. H. M. | CHA'STON H. M. | CHICAGO. H. M. |
|---|---|---|---|---|---|---|
| Full M'n | 2 | 2 28 mo. | 2 16 mo. | 2 4 mo | 1 52 mo. | 1 22 mo. |
| 3d Quart. | 9 | 9 25 ev. | 9 13 ev. | 9 1 ev. | 8 49 ev. | 8 19 ev. |
| New M'n | 17 | 3 26 ev. | 3 14 ev. | 3 2 ev. | 2 50 ev. | 2 20 ev. |
| 1st Quart | 24 | 10 28 mo. | 10 16 mo. | 10 4 mo | 9 52 mo. | 9 22 mo. |
| Full M'n | 31 | 2 14 ev. | 2 2 ev. | 1 50 ev. | 1 38 ev. | 1 8 ev. |


# AMERICAN AGRICULTURIST.

NEW YORK, AUGUST, 1879.


## Hints for the Work of the Month.

[*The Hints and Suggestions in these columns are never copied from previous years, but are freshly prepared for every month, from the latest experience and observations, by practical men in each department.*]

*The Stubbles* are now idle upon most farms. This is not desirable; dry weather at this season seriously interferes with plowing, and the work can not be well done if it is delayed. As soon as the oats have been removed the ground should be plowed, and if the weather continues dry, it should be cultivated or worked with the harrow. The disk or wheel harrow is excellent for this purpose. Otherwise a cross plowing should be given before the ground becomes hard. The loosened surface will keep the bottom from drying out.

*Wheat* requires a fine and mellow soil, it is best if compact below and roughish on the top. If there are any clods, these should be brought up from below by repeated harrowings, and broken by the roller or the disk harrow. If they can not be broken up completely they are better on the top than below the surface. A roller will break many.

*Drilling Wheat.*—Many farmers are testing the practice of cultivating wheat. We hear of frequent experiments in this direction, and these have generally turned out satisfactorily. Cultivating or hoeing is easily done by drilling the wheat in 16-inch rows, by stopping every alternate spout. It is not difficult to construct a simple cultivator that will work the spaces between the drills. There are two different wheat hoes in the market that do the work effectively. Wheat that is sown broadcast can not be cultivated. This fact, and the better condition of drilled wheat, should be sufficient inducement to use the drill, if the great saving of seed and the lessening of labor are not.

*Rye.*—Where the soil is not good enough for wheat, rye will be sown; but, as a general thing, soil that will make a good crop of rye can be made sufficiently rich for wheat by careful preparation, and the use of 250 or 300 lbs. of artificial fertilizer.

*Liming Land.*—Lime is an old-fashioned fertilizer, but it should not for that reason be neglected. It is cheap, and rarely fails to pay well for its use when land is to be seeded to grass and clover. Forty bushels per acre of air-slaked lime is usually spread from the wagon with a long handled shovel upon the plowed ground, and harrowed in with the seed. It will do no harm to put on the lime immediately after the manure if it is harrowed in at once.

*Oyster Shells* are frequently to be procured for a small price, and may be burned very cheaply. To burn them, make a heap of shells, and small wood; brush wood can be used if chopped into small lengths and packed close. Wood and shells are packed in layers, and the heap is covered with chips and small wood or brush. As it burns down, more brush is thrown upon the heap, and it may be left to smoulder for two days, when the fire will be burned out. A few barrels of water may be thrown upon a heap of 300 or 400 bushels, and it will slake into a fine powder; when it may be spread upon the field. In slaking the lime, the water should be thrown on gradually, lest too much be used and the lime become pasty.

*Gas Lime* can often be procured for the taking away, at any gas works. It is at least worth the cost of carting a moderate distance. But it should not be used while it is fresh. If hauled now it may be laid in heaps on land to be plowed in next spring or on land to be fall plowed, and spread either in the fall or spring. A few months' exposure is needed to free it from injurious gases, which pass off in time. After 3 or 4 months it becomes Carbonate of Lime, or mild lime, with a considerable portion of Sulphate of Lime (gypsum) mixed with it.

*Swamp Lands.*—No better time than the present offers for the clearing of swamp lands. To cut off the thick growth of weeds and coarse grass and sedges, and burn these on a dry windy day, will leave the surface clear, while it is dry enough to plow or break up. We find a disk harrow, such as the Nishwitz, or new modifications of, the old but excellent idea of, sharp steel disks, to be very effective for such work. The ground, when cut up fine, may be seeded to grass at once, with a good chance for a successful catch. On swamp lands, a good dressing of lime will be found generally useful.

*Drains.*—Cut these while the ground is dry. If they have been marked, or laid out previously, the work can be done now, at half the cost of doing it when the ground is full of water. This season is better than any other for reclaiming swamp meadows.

*Digging Swamp Muck.*—Muck for use in the stables and yards, can be dug during this month and next. With us contracts can be made at 15 cents a cubic yard, for muck laid upon the bank. This is the best way to get this work done, when the labor is hired. The excavation can be measured with ease and certainty. A cubic yard measures 3 feet each way—long, wide, and deep. The muck on the bank will dry, and become fine before winter.

*Fodder Crops* that have not been used, should be cut and cured for winter. Sweet Corn stalks, from which the ears have been pulled for market, should not be left to waste, but cut up and cured as soon as the crop is off. The ground may be plowed at once, and sown to White Turnips. There should be no wastes of fodder, or of ground, and every little saving that is possible, should be made.

*White Turnips* may be sown this month, and yield a valuable crop. The Cow-horn, White Norfolk, Grey-stone, and other quick growing varieties, will make a good growth, before the ground is frozen up.

*Fall Fallowing.*—Experience proves, every season, the wisdom of plowing as much as possible, for spring sowing. Early fall plowing, has the benefit of fallowing to some extent, and the earlier it is begun, the more advantages are derived from it; it is more beneficial on heavy land than on light, but light land cannot fail to be improved by it.

*Mangels and Beets.*—Root crops and field cabbages need frequent cultivation during this month, and up to the time when the rows become nearly closed by their growth. So long as the horse can pass along the rows the soil should be stirred deeply. Sugar-beets are sweeter the deeper they are covered in the ground; white sugar-beets may be earthed up, but mangels and globe beets do not need this;

mere stirring the soil is sufficient. Thin when needed, and pull all weeds that start in the rows.

*Clover-Seed.*—Clover that was mown early for hay may be ready to cut for seed this month. If cut early, the sod may be prepared for wheat. A clover sod after the seed has been taken off furnishes rich soil for a wheat crop. The sod should be plowed with a jointer, such as the Syracuse Chilled Plow, and the ground well rolled; the surface may be then loosened up with a cultivator before sowing.

*Wounds and Bruises* in horses and cattle should be washed and dressed with some emollient application. The Veterinary Cosmoline, a preparation of crude petroleum, has proved an excellent dressing for damaged skin, sprains, or bruises, on horses, cattle and sheep, as well as for softening hard or contracted hoofs. It has been found to serve a useful purpose for mankind as well as for animals.

*Horses.*—A run at pasture at night will be useful for a team, but either the pasture should be good or the horses should receive a feed of grain before being turned out; pasture alone will not be sufficient for a tired horse that is kept at work every day.

*Care of the Feet.*—Work horses are subject to have dry and brittle hoofs while plowing on hot dry ground. Occasional washing and application of glycerine or Cosmoline to the moist hoofs will soften the horn and remedy the brittleness. At this season mischief is done by keeping old shoes on too long. It is necessary to remove shoes to accommodate the growth of the hoof; otherwise there is danger that the hoof may become bound.

## Notes on Orchard and Garden Work.

Harvesting the maturing crops, and weed-killing, are the chief occupations of the month. The killing of weeds is of as much importance now as earlier in the season, and is mentioned with special emphasis, for the reason that it is so often neglected. The orchard, nursery rows, and garden, are often well tilled during the Spring and early Summer, but when August comes the weeds too often have it all their own way. This is partly due to the pressure of other work, but frequently to negligence. Too often, as soon as the crop is well on its way, the hoe and rake are hung up, and the weeds take possession of the ground and ripen their seeds in abundance for the next season's trouble. Clean culture is not possible unless the weeds are persistently killed throughout the whole season.

### Orchard and Nursery.

Early apples, pears, etc., will be ready for market, and we wish that every one who sends fruit to distant markets could visit the places to which his produce goes. He would there learn by observation many things which he can not otherwise find out. It would not take the watchful producer long to see the importance of carefully sorting his fruit—he would learn that it is to his profit to have in most cases at least three grades, namely, "Extra," "No. 1," and a third sort, unfit to send to market and only to be used for feeding out at home. In seasons of scarcity a third grade may be marketed near home, but usually it does not pay.

*Over-Ripe Fruit.*—The visitor at the markets will learn the importance of picking his fruit before it begins to soften. This is especially to be guarded against with early sorts, both the character of the fruit and the weather prevent "dead ripe" fruit from keeping any length of time.

*Packages.*—While barrels are the most convenient packages for late apples, choice Early Apples sell better in half-barrels, crates, and baskets. The preferences of the market should be consulted in this respect. Much depends upon the size and shape of the package, as regards the care fruit will meet in handling during transportation. Use care in picking the fruit, and putting it into the package, to avoid bruising; the little extra time expended here will pay a large interest. Whatever the package—barrel, half-barrel, or crate, it should be so filled that considerable pressure is required to bring the cover into place. This is necessary to hold the fruit firmly, thus avoiding the bruising which would otherwise follow from shaking.

*Early Pears* require still greater care, as they ripen and decay so rapidly. They should be picked before they are at all mellow. Early Pears, like the late sorts, are better if ripened in the house.

*Pack Honestly.*—The success of a fruit grower depends upon solid reputation for honesty. Let every package be as represented, and like every other of its grade. This will insure the confidence of the commission merchants, the esteem of the consumers, a ready sale of the fruit, and an inward satisfaction.

*Careful Pickers.*—Let no one pick fruit who has no thought for the life of the tree, and the seasons that are to follow. We have seen orchards that looked, after the picking, as if a hail storm had visited it, the limbs were so torn and broken.

*Insects.*—Feed all the wind-falls containing the *Codling Moth* "worms" to the hogs, or let these have an occasional run in the orchard. The bands to catch the worms should be looked to every week, and the worms killed. *Borers* should be probed and killed with a wire. Some *Bark Lice* and other plant lice can be killed by a wash of strong soft soap.

*Budding* should be done as soon as the bark of the stock will raise easily, and the buds are woody and well matured. A keen, flat knife and the bast or inner bark of the Basswood are all that are necessary for the work. In the application of the ties see that the bud fits closely to the stock. An expert will put in 3,000 buds in a day.

*How to Bud.*—We can not repeat instructions for such operations every year. In the Notes for August, 1877, we gave directions for budding, illustrated by engravings, which, if carefully followed, would enable any intelligent person to perform the operation. This number may be had for 15 cents.

*Seedlings* of forest trees, especially Evergreens, require shading. If no other shade has been prepared, stick small leafy branches among them.

*Young Trees.*—A mulch will be of great value to newly set trees in this, the most trying month.

*Fences* around the nursery and orchard should be kept in good order; stray cattle may cause much destruction when they once get among the young trees, or even older ones when loaded with fruit.

### The Fruit Garden.

*Blackberries.*—For home use the fruit should be fully ripe before picking, but for market pick earlier while firm. After fruiting clear out all old canes, and leave four of the strongest new ones for the next year, and keep these at six feet in hight by pinching off the tips.

*Raspberries.*—Cut out the old canes, and pinch the new growth when it is about four feet high.

*Grapes.*—If mildew makes its appearance give the vines a thorough dusting of sulphur, as directed last month. Cut out any bunches affected with the "black rot." Hand-pick beetles and caterpillars.

*Strawberries.*—Plants struck in pots and set this month, will bear the next season. Old beds should be well manured and kept clear of weeds.

### Kitchen and Market Garden.

It is now that the well-planted and kept Kitchen Garden makes its value felt in abundant supplies of vegetables for the table. Though most vegetables are beyond serious injury from weeds, the various weeding implements should be kept at work in the garden. A weed going to seed now, means many hundred-fold of its kind for next year. If there is nothing on a strip where an early crop has been removed, let the cultivator run over it every few days, but it is better to sow such places, and keep all the ground in cultivation. Spinach may be sown, and turnips sown now will make a good crop.

*Asparagus.*—But little can be done now except to keep the large weeds pulled out.

*Beans* should not be hoed when the vines are wet, as it is said to make them rust. Plant Refugee for late crop, especially for pickling. Pinch the stems of Limas off when they reach the top of the pole.

*Beets.* — Keep hoeing and thinning, using the young plants for greens.

*Cabbages and Cauliflowers.*—Set now for late use. Destroy the "worms" by catching the butterfly; hand-picking, by brine sprinkled over the plants, or by the use of water heated to 180°.

*Carrots* must have clean culture. When too large to hoe, pull out large weeds that show themselves.

*Celery.*—If not set, should be put out at once; it will yet make a crop in well manured moist soil.

*Corn.*—The late crop should be cultivated and clear of weeds, and the soil kept open and mellow.

*Cucumbers.*—Cultivate the soil as long as the vines will allow it, and hand-pull the weeds afterwards. Gather for pickles when of the desired size. Some like them of the size of the forefinger, and others prefer them even smaller, but the yield will of course be less if picked of that size.

*Egg Plants.*—Keep well cultivated, and place straw beneath the fruit to keep it from the ground.

*Endive.*—Set plants for late crop. Tie up the leaves when ready to blanch.

*Herbs* should be cut while in early flower, made into bunches, and dried slowly in the shade.

*Melons.*—Those which set too late to ripen should be picked off. If the ground is mulched with straw just as the vines are beginning to run, it will save hoeing, and keep the fruit from the ground. If the fruit is occasionally turned it will ripen better. Musk melons are ripe when the stem separates from the fruit. A ripe water melon is known by the peculiar and characteristic sound when thumped; easier remembered than described.

*Onions.*—Harvest as soon as ripe, and when well dried, store in an airy place. Onion "sets" should be kept where they will not heat and decay.

*Potatoes.*—Dig the early crop as soon as the vines wither and die down. Burn the vines, as they may contain the potato-rot fungus. Market at once.

*Seeds.*—As a general thing it is cheaper and more convenient to get seeds of the regular seedsmen than to save them. But if any are saved, let them always be of the earliest, fairest, and best specimens.

*Squashes.*—Watch the vines for injurious insects. Pull out the weeds when you can not hoe any longer.

*Sweet Potatoes.*—Do not let the vines root at the joints, as numerous small potatoes will form there at the expense of large ones.

*Tomatoes.*—Destroy the large green worms by hand-picking. Provide a cheap frame of stakes and poles, or place straw under the vines, to keep the fruit up from the ground. Trim off the late branches and flower clusters, and thus throw all the nourishment into the fruit that is sure to ripen.

### Flower Garden and Lawn.

If the weather is dry, watering in the flower garden will be a necessity. This can be done with most effect and comfort towards sundown. The weeds will always grow, and must be kept out with hoe and rake. *Care* is the *watchword* of the month. The beds should be kept in order by picking and trimming, especially if they are of the so-called foliage plants, and represent formal designs.

*Bulbs* of spring flowers should now be taken up.

*Dahlias* are to be secured to stout stakes firmly set in the ground. Cut off the old flowers as fast as they have faded away. Pick off grasshoppers.

*Gladioluses* will need stakes to the flower stalks.

*Lawns and Edgings* should be kept closely cut. Lawn mowers are so perfect now, that there is no excuse for not having a well kept lawn. Large weeds can be taken out with an old chisel fixed to a handle. Keep the drives clean by frequent raking, and occasionally use the hoe along the edges.

### Greenhouse and Window Plants.

This should be the time for getting the greenhouse in good order for the incoming plants. Look well to the heating apparatus, that no trouble may arise here when the cold snaps of autumn come.—Wash the woodwork, and do the necessary painting. Get in a supply of pots, potting material, labels, and all other needful articles, before the busy time of autumn comes. It should be a general cleaning up time. Fumigate if it is necessary.

## Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, from our record kept daily during the year, show at a glance the transactions *for the month ending July 11th*, 1879, and for the corresponding period last year:

**1.** TRANSACTIONS AT THE NEW YORK MARKETS.

| RECEIPTS. | *Flour.* | *Wheat.* | *Corn.* | *Rye.* | *Barley.* | *Oats* |
|---|---|---|---|---|---|---|
| 23 d's *this* m'th.. | 341,000 | 2,987,000 | 5,101,000 | 196,000 | 312,000 | 1,171,000 |
| 27 d's *last* m'th.. | 447,000 | 4,510,000 | 3,107,000 | 385,000 | 339,000 | 952,000 |
| SALES. | *Flour.* | *Wheat.* | *Corn.* | *Rye.* | *Barley.* | *Oats.* |
| 23 d's *this* m'h | 456,000 | 8,148,000* | 8,439,000* | 289,000 | —— | 1,393,000* |
| 27 d's *last* m'h | 502,000 | 10,763,000* | 6,215,000 | 603,000 | 101,000 | 1,469,000* |

* Including sales for forward delivery.

**2.** *Comparison with same period at this time last year.*

| RECEIPTS. | *Flour.* | *Wheat.* | *Corn.* | *Rye.* | *Barley.* | *Oats.* |
|---|---|---|---|---|---|---|
| 23 days 1879.. | 341,000 | 2,987,000 | 5,104,000 | 196,000 | 312,000 | 1,171,000 |
| 25 days 1878.. | 382,000 | 4,907,000 | 3,962,000 | 190,000 | 261,000 | 1,137,000 |
| SALES. | *Flour.* | *Wheat.* | *Corn.* | *Rye.* | *Barley.* | *Oats.* |
| 23 days 1879.. | 456,000 | 8,148,000 | 8,439,000 | 289,000 | —— | 1,393,000 |
| 25 days 1878.. | 476,000 | 6,518,000 | 5,151,000 | 570,000 | 98,000 | 1,956,000 |

**3.** *Stock of grain in store at New York.*

| | *Wheat.* bush. | *Corn.* bush. | *Rye.* bush. | *Barley.* bush. | *Oats.* bush. | *Malt.* bush |
|---|---|---|---|---|---|---|
| July 7, '79.. | 1,159,019 | 1,917,747 | 60:147 | 45,099 | 211,662 | 158,640 |
| July 11, '78.. | 1,591,132 | 720,784 | 138,852 | 174,000 | 207,769 | 663,075 |

**4.** *Exports from New York, Jan. 1, to July 10.*

| | *Flour.* bbls. | *Wheat.* bush. | *Corn.* bush. | *Rye.* bush. | *Barley.* bush. | *Oats.* bush. | *Peas.* bush. |
|---|---|---|---|---|---|---|---|
| '79.. | 1,529,000 | 23,233,450 | 17,821,000 | 2,213,900 | 101,800 | 396,600 | 193,000 |
| '78.. | 1,299,200 | 22,978,000 | 14,317,700 | 2,220,600 | 1,512,200 | 1,202,300 | 290,000 |

**5.** *Tide-water Receipts at Albany, from opening of navigation to June 28:*

| | *Flour.* bbls. | *Wheat.* bush. | *Corn.* bush. | *Rye.* bush. | *Barley.* bush. | *Oats.* bush. | *Malt.* bush. |
|---|---|---|---|---|---|---|---|
| '79.. | 1,300 | 2,935,600 | 3,032,500 | 573,200 | 9,100 | 163,600 | 92,800 |
| '78.. | 2,400 | 8,001,600 | 7,109,700 | 626,500 | 281,500 | 1,602,800 | 110,600 |
| '77.. | 2,300 | 1,361,800 | 4,111,100 | 133,100 | 310,700 | 728,200 | 175,8 0 |
| '76.. | 10,100 | 5,594,100 | 887,100 | 243,500 | 91,000 | 1,129,700 | 231,000 |
| '75.. | 17,200 | 4,295,800 | 1,214,300 | 54,400 | —— | 782,300 | 423,308 |

CURRENT WHOLESALE PRICES.

| | June 13. | July 11. |
|---|---|---|
| FLOUR—Super to Extra State | $3 40 @ 4 35 | $3 50 @ 4 50 |
| " Super to Extra South'n. | 3 45 @ 6 75 | 3 50 @ 6 75 |
| " Extra Genesee | 4 40 @ 6 00 | 4 60 @ 6 25 |
| " Superfine Western | 3 40 @ 3 80 | 3 50 @ 3 90 |
| " Extra Western | 3 75 @ 8 75 | 3 90 @ 8 75 |
| " " Minnesota | 3 75 @ 8 75 | 4 00 @ 8 25 |
| RYE FLOUR, Superfine | 2 90 @ 3 50 | 2 90 @ 3 65 |
| CORN-MEAL | 1 90 @ 2 25 | 2 00 @ 2 55 |
| OAT MEAL, ℔ bbl | 2 75 @ 6 00 | 2 75 @ 6 00 |
| WHEAT—All kinds of White. | 1 00 @ 1 18½ | 1 05 @ 1 21 |
| " Red and Amber | 95 @ 1 22 | 1 00 @ 1 22 |
| " Spring | 74 @ 1 06½ | 78 @ 1 15 |
| CORN—Yellow | 43½@ 55 | 43½@ 52½ |
| " White | 45½@ 51½ | 45½@ 52 |
| " Mixed | 40 @ 44½ | 41 @ 45¾ |
| OATS | 36 @ 45 | 37 @ 46 |
| RYE | 59 @ 65½ | 61 @ 65 |
| BARLEY | Nominal. | Nominal. |
| HAY—Bale, ℔ 100 ℔s | 30 @ 80 | 35 @ 85 |
| STRAW, ℔ 100 ℔s | 35 @ 60 | 35 @ 65 |
| COTTON—Middlings, ℔ ℔ | 12⅞@ 13 | 12¼@ 12⅜ |
| HOPS—Crop of 1878, ℔ ℔ | 5 @ 12 | 6 @ 13 |
| " " 1877, ℔ ℔ | 2 @ 4 | 3 @ 5 |
| " olds, ℔ ℔ | 1 @ 2 | 2 @ 3 |
| FEATHERS—Live Geese, ℔ ℔ | 35 @ 47 | 35 @ 47 |
| SEED—Clover, West. & St.℔ ℔ | Nominal. | Nominal. |
| " Timothy, ℔ bushel | 1 20 @ 1 37½ | Nominal. |
| " Flax, ℔ bushel | Nominal. | Nominal. |
| TOBACCO, Kentucky, &c., ℔ ℔. | 2½@ 11½ | 2½@ 11½ |
| " Seed Leaf, ℔ ℔ | 5 @ 40 | 5 @ 40 |
| WOOL—Domestic Fleece, ℔ ℔ | 20 @ 40 | 20 @ 40 |
| " Domestic, pulled, ℔ ℔ | 18 @ 36 | 18 @ 37 |
| " California | 10 @ 25 | 10 @ 20 |
| TALLOW, ℔ ℔ | 5⅞@ 6 | 6 @ 6⅛ |
| OIL-CAKE—℔ ton | — @29 00 | 29 00 @29 50 |
| PORK—Mess, ℔ barrel | 9 30 @10 25 | 9 50 @10 25 |
| " Extra Prime, ℔ barrel | 8 75 @ — | — @ — |
| BEEF—Extra mess | 10 50 @11 50 | 10 50 @11 50 |
| LARD, in tres. & bbls, ℔ 100 ℔ | 6 35 @ 6 85 | 6 10 @ 6 75 |
| BUTTER—State, ℔ ℔ | 5 @ 17 | 4 @ 15½ |
| " Western, poor to f'cy, ℔. | 4 @ 17 | 4 @ 15½ |
| CHEESE | 2 @ 7½ | 1 @ 6 |
| EGGS—Fresh, ℔ dozen | 10 @ 14 | 10 @ 13 |
| POULTRY—Fowls, ℔ ℔ | 8 @ 12 | 9 @ 13 |
| " Chickens, ℔ ℔ | 22 @ 35 | 16 @ 25 |
| " Roosters, ℔ ℔ | 4 @ 5 | 5 @ 7 |
| Turkeys—℔ ℔ | 8 @ 18 | 9 @ 12 |
| Geese, ℔ pair | 75 @ 2 00 | 87 @ 2 00 |
| Ducks, ℔ pair | 40 @ 70 | 40 @ 60 |
| Capons, ℔ ℔ | 20 @ 25 | 20 @ 25 |
| SNIPE, per doz | 40 @ 2 00 | 40 @ 2 25 |
| PIGEONS, ℔ doz | 25 @ 1 00 | 35 @ 2 00 |
| PLOVER, ℔ doz | 1 50 @ 1 75 | 1 75 @ 2 00 |
| APPLES, ℔ barrel | 1 00 @ 2 75 | 1 00 @ 2 50 |
| STRAWBERRIES, ℔ quart | 3 @ 10 | 5 @ 11 |
| CHERRIES, ℔ ℔ | 5 @ 12 | 4 @ 8 |
| RASPBERRIES, ℔ qt | — @ — | 2 @ 7 |
| GOOSEBERRIES, ℔ bushel. | — @ — | 1 50 @ 1 75 |
| CURRANTS, ℔ ℔ | — @ — | 6 @ 10 |
| BLACKBERRIES, ℔ qt | — @ — | 4 @ 14 |
| WHORTLEBERRIES, ℔ qt | — @ — | 5 @ 8 |
| PEACHES, ℔ half bush. crate. | — @ — | 1 50 @ 4 00 |
| PLUMS, ℔ qt | — @ — | 4 @ 12 |
| POTATOES, ℔ bbl | 2 25 @ 3 25 | 1 00 @ 3 50 |
| " Sweet, ℔ bbl | 2 75 @ 3 25 | 2 50 @ 3 75 |
| TURNIPS ℔ bbl | 1 50 @ 2 00 | 75 @ 1 25 |
| " white, ℔ 100 bunches. | 2 75 @ 4 00 | 1 00 @ 2 50 |
| TOMATOES, ℔ crate | 1 25 @ 2 50 | 1 00 @ 1 50 |
| RADISHES, new ℔ 100 bun | 25 @ 50 | 15 @ 35 |
| BEANS—℔ bushel | 75 @ 1 50 | 1 00 @ 2 85 |
| PEAS—Canada, in bond, ℔ bu | 74 @ 75 | 72 @ 75 |
| " new, ℔ bag | 1 00 @ 1 50 | 75 @ 1 00 |
| STRING BEANS, new, ℔ bag | 1 00 @ 3 50 | 50 @ 1 25 |
| BROOM-CORN | 2 @ 6½ | 2½@ 6½ |
| BEETS, new, ℔ 100 bunches | 2 50 @ 4 00 | 1 00 @ 2 00 |
| CABBAGES—℔ 100 | 2 00 @ 5 50 | 2 00 @ 5 00 |
| CAULIFLOWER, ℔ doz | — @ — | 75 @ 3 50 |
| ONIONS—℔ bbl | — @ — | 3 00 @ 4 00 |
| " ℔ crate | 75 @ 1 25 | 1 00 @ 1 75 |
| SQUASH, ℔ crate | 50 @ 75 | — @ — |
| CUCUMBERS, ℔ crate | 1 00 @ 2 25 | 25 @ 1 00 |
| WATERMELONS, ℔ 100 | — @ — | 15 00 @30 00 |

Wide fluctuations have occurred, during the month, in several kinds of Produce, the dealings in which have been on a liberal scale. Breadstuffs have been in most request at variable prices, as influenced, in good part, by e current reports—foreign and domestic—relative to position and outlook of the crops, weather, etc. tive manipulation, likewise, has had much to do shaping of values, particularly of Wheat. Toward the close, the market was unusually brisk and buoyant, especially for Wheat, which was advanced sharply, on reduced offerings, and a more urgent inquiry, largely from the export interest, stimulated by the more encouraging tenor of the market reports by cable, as reflecting the unfavorable crops and harvest prospects in Western Europe. Spring grades were very prominent in the transactions, and—besides other important operations—embraced one line of 1,000,000 bushels No. 2 Milwaukee, taken from recent speculative holders, for actual shipment, at a price not made public, but understood to have been relatively well up to the current market rate (previous to the notable rise of the last few days) for the specified grade, for actual withdrawal of stock from market, considering the magnitude of the line. No. 2 Red also formed important features in the movements. The several grades most in favor with buyers, however, wound up heavily at a reaction from the highest point of 2@4c. a bushel, on a pressure to sell, due to the improvement in the weather and crop prospects. Corn and Oats also met with a readier market at hardening prices, but left off irregularly. Rye, which was quite dull early in the month, attracted more attention near the close, and showed more firmness. A sample of new crop Jersey Rye was exhibited on 'Change, on the 7th inst.; quality deemed superior....Hog and Beef products have been moderately active, and firm, but closed weaker. Butter, Cheese, and Eggs quoted cheaper, on a moderate call for supplies... Hops advanced 1c. per lb., on a better inquiry and lighter offerings....Hay, Straw, and Tobacco in fair request at current quotations....Cotton has been offered more freely, leading to a decline, on a restricted movement.....Naval Stores, moderately sought after, closing weaker....Petroleum rallied slightly, on light offerings for early delivery, and a fairly active demand.... Wool opened buoyantly, on a pretty brisk inquiry; but closed rather tamely at the ruling prices....Ocean freights were depressed, on a more liberal supply of accommodation for early use, and moderately active call, chiefly from the Grain, Flour, Petroleum, Lumber, and Coal interests.

### New York Live-Stock Markets.

RECEIPTS.

| WEEK ENDING | *Beeves.* | *Cows.* | *Calves.* | *Sheep.* | *Swine.* |
|---|---|---|---|---|---|
| June 16 | 11,827 | 51 | 5,301 | 35,924 | 27,888 |
| June 23 | 12,258 | 82 | 4,174 | 40,184 | 31,263 |
| June 30 | 12,615 | 108 | 5,058 | 31,465 | 27,812 |
| July 7 | 9,398 | 46 | 4,317 | 32,391 | 22,224 |
| *Total for* 4 *Weeks* | 45,648 | 287 | 18,850 | 142,961 | 109,387 |
| do. *for prev.* 4 *Weeks* | 42,594 | 260 | 21,225 | 126,824 | 135,215 |

| | *Beeves.* | *Cows.* | *Calves.* | *Sheep.* | *Swine.* |
|---|---|---|---|---|---|
| *Average per Week* | 11,412 | 72 | 4,712 | 35,741 | 27,347 |
| do. do. *last Month* | 10,648 | 65 | 5,306 | 31,706 | 34,804 |
| do. do. *prev's Month* | 9,976 | 64 | 4,667 | 22,670 | 34,182 |

The prices for the past four weeks were as follows:

| WEEK ENDING | *Range.* | *Larger Sales.* | *Aver.* |
|---|---|---|---|
| June 16 | 7¼@10⅛c. | 8½@ 9¼c. | 8⅞c. |
| June 23 | 6¾@10½c. | 8½@ 9½c. | 9 c. |
| June 30 | 7 @10¼c. | 8½@ 9¼c. | 8⅞c. |
| July 7 | 7 @10¼c. | 8½@ 9¼c. | 8⅞c. |

**Beeves.**—The market has tended steadily downwards until the close of our report, when a gain of ¼c. per lb. was made, trade being favored by a short supply, good cattle, and satisfactory weather for keeping meat. Sales were made at the close, however, at a reduction of ½c. per lb. from the prices of a month ago; there being a wide range in quality of stock, prices were irregular. Dry cows sold lowest, at 7c. per lb. for 54 lbs. to the cwt., while choice steers, for the supply of the watering places, brought 10¼c. per lb. for 57 lbs. to the cwt.; 26 head of such steers, averaging 1,642 lbs., were taken by one butcher at the above price. Kentucky grass steers sold at 8@9c. per lb., to dress 54 to 56 lbs. to the cwt; corn-fed, 56 lbs., brought 9¼@9¾c. per lb. Dressed beef was in active demand, at 7½c. per lb. for good and 7¾c. per lb. for extra sides.... **Cows.**—There has been but little demand for cows, and no fresh receipts came to hand for a week or ten days previous to the close of our report. Prices are steady, at $30 to $55 per head, according to quality... **Calves.**—Good veals have been in demand and sold readily, closing at an advance of ½c. per lb. Buttermilk calves also met a ready sale at higher prices, viz., 2½@3c. per lb. live weight; fed calves brought 3½@4c per lb. live weight. Good to prime veals sold at 4½@6c. per lb., and extra good at 6¼@6½c. per lb. live weight.....**Sheep.**—The market, after an irregular course, has settled down at lower prices, although the trade has been brisk, and a promise of better prices was apparent at the close. Sales were made of poor to good butchers' sheep at 3¼@4½c. per lb. alive; shipping sheep at 4¾@5c. per lb.; extra sheep were a little higher; lambs sold for 5@6½c. per lb... **Swine.**—The market has been dull and weak. Prices have been irregular, closing at 4@4¼c. per lb. for live of 150 to 180 lbs. Heavier hogs are very dull. No dressed hogs to be found on the market, and no prices are quoted.

**The Horse Market.**—The market for horses has been very quiet, and but little business has been done, excepting for shipment. A large number of work-horses have been exported for the foreign tram roads, and 28 coach horses were sent out in one week. These were exceptionally fine animals and are expected to open the way for more extensive business in this class of horses. Prices are so irregular that no quotations can be given.

### Prices of Feed.

| | |
|---|---|
| Bran, per ton | $16.00@$18.00 |
| Middlings, per ton | 19.00@ 20.00 |
| Ground Feed, per ton | 21.00@ 23.00 |
| Linseed-oil-cake, western, per ton | 35.00@ 40.00 |
| Cotton-seed-cake, per ton | 25.00@ — |
| Chandler's Scraps, per ℔ | 2@ 3 |

### Prices of Fertilizers.

| | |
|---|---|
| Nitrate of Potash (95 per cent.), per lb. | 9 @9½c. |
| Sulphate of Potash (potash 44 per cent) per lb. | 3 @3¼c. |
| do. do. (potash 27½ per cent) per lb. | 1½@1¾c. |
| German Potash Salts (potash 12 to 15 p. c. p. ton. | $15.00@18.00 |
| Muriate of Potash (potash 50 per cent), per lb. | 2 @2¼c. |
| Nitrate of Soda, per lb | 3⅜c.@4¼c |
| Sulphate of Ammonia (25 per cent.), per lb. | 4½c.@4¾c. |
| Dried Blood (ammonia 13 per cent) per ton | $40.00@45.00 |
| No. 1, Peruv. Guano 10 p. ct. ammonia, standard, ℔ ton | $56.50 |
| do. do. Lobos, do. do. do. | 47.50 |
| do. do. guaranteed, ℔ ton, cargo K | 56.00 |
| do. do. rectified, per ton, 9.00 p. c. | 65.00 |
| do. do. do. do. 3.40 p. c. | 51.00 |
| Soluble Pacific Guano, ℔ ton | 45.00 |
| Excelsior Fertilizer Works, Fine Ground Raw Bone | 55.00 |
| Mapes' Complete Manure (clay soils) per 1,000 lbs | 25.00 |
| do. do. do. (light soils) per 1,000 lbs | 25.00 |
| do. do. do. "A" Brand, (for wheat) per 1,000 lbs | 20.00 |
| do. Fruit and Vine Manure, do. | 17.50 |
| do. Bone, strictly pure, meal per ton | 42.00 |
| do. do. do. medium do. | 36.00 |
| do. do. do. dissolved do. | 42.00 |
| do. Cabbage and Cauliflower Manure per 1,000 lbs | 23.00 |
| do. Corn do. per 1,000 lbs | 23.75 |
| Stockbridge Corn Manure, per acre | 20.00 |
| " Potato do do | 10.00 |
| " Tobacco do do | 50.00 |
| " Rye do per ton | 45.00 |
| " Wheat do do | 45.00 |
| " Seeding Down Manure, per ton | 40.00 |
| " Turnip Manure, per ton | 50.00 |
| Bowker's Hill and Drill Fertilizer, per ton | 45.00 |
| " Wheat Phosphate, per ton. | 40.00 |
| Baugh's Raw Bone Phosphate, per ton | 33.00 |
| Baugh's Manure for Tobacco and Grain, per ton | 45.00 |
| Walton, Whann & Co.'s Raw Bone Phosphate | 40.00 |
| Gypsum, Nova Scotia, ground, per ton | 8.00 |

*containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of room elsewhere.*

**Clubs** can at any time be increased by remitting for each addition, the price paid by the original members: or a small club may be made a larger one at reduced rates, thus: One having sent 6 subscribers and $7, may afterwards send 4 names more and $3, making 10 subscribers for $10.00; and so for the various other club rates.

**Bound Copies** of volume 37, and of every previous volume back to Vol. XVI. (1857), neatly bound, with gilt backs, Index, etc., are supplied at $2 each (or $2.30 if to be sent by mail). See Publishers' Notes, 2d cover page.

**Read the Advertising Columns.**—Letters are daily received by the editors, asking where pigs, fowls, seeds, fertilizers, machinery, etc., can be procured. We consider all the information of this kind that is given in the advertising pages sufficient, if those needing anything will only look there; and can not find room to repeat what is already plainly told elsewhere. Every page of the *American Agriculturist*, including the covers, is interesting reading, and should all be carefully examined every month. In addition to looking after what one may want, the reading of what others have to say, in offering their wares, etc., starts up some new idea in the mind of the reader.—When writing to any advertiser, always tell him in what paper his advertisement was seen.

**The German Edition.**—All the principal articles and engravings that appear in the *American Agriculturist* are reproduced in the German edition. Besides these, there is a special department, edited by an eminent German cultivator. Our friends can do us a good service by calling the attention of their German neighbors and friends to the fact that they can have the paper in their own language, and those who employ Germans will find this Journal a most useful and acceptable present.

**Terms to New South Wales, New Zealand, Australia, Africa, etc.**—To several inquirers. Under the latest revision of the Postal Union Regulations the price of the *American Agriculturist*, (either English or German edition), including postage *prepaid* through, will be covered by 7 shillings sterling per annum. This applies to the above countries, and to all others embraced in the General Postal Union. The simplest mode of remittance is by Postal Money Orders, payable in London, to the order of Orange Judd Company. These can be readily cashed in N. Y. City at a slight discount, which the publishers will cheerfully pay. For Club rates, (postage included), see our second cover page, and reckon the dollar at 4s. 2d.

**The Coming Fairs.**—While our list of announcements of fairs, from official sources, is larger than at this time in any former year, there is still great room for improvement in this respect. Our Fair-List is made up, in the first place from announcements sent by the officers of

the societies holding them; in the second place from the advertisements in the various papers. We would repeat our request to the secretaries and other officers of fairs of all kinds, to send the dates and place as soon as possible. If no printed circulars are issued, send a postal-card. Be sure and give State, County, Town, and dates.

**Name the State.**—One of the curiosities of fair show-bills is the frequent omission of the State. When we get a "broadsider," brilliant in red, green and black ink, of the Washington, Jefferson, or Adams County Fair, and find the name of the State omitted, we are puzzled, and a reference to the Gazetteer does not help the matter, as there are any number of counties of these names.

**Houghton Farm—Doct. M. Miles.**—It has been announced by some Western journals that Doct. Miles is engaged to conduct the experimental operations at Houghton Farm. This is a matter in which the readers of the *American Agriculturist* have an interest, and though it was not intended to allude to it in these columns until plans were matured and operations were well under way, yet as others have already given it publicity, we may, with propriety, say that the announcement referred to is true. It was stated last year that it was the intention of its proprietor to devote a share of Houghton Farm to agricultural experiments; owing to the difficulty of finding a proper person to take charge, the matter has for some time been in abeyance. In the engagement of Doct. Miles the most important point in the enterprise has been fixed. Through a long term as Professor of Agriculture at the Michigan Ag'l College, through his lectures in various parts of the country, as well as through his reports, his contributions to the agricultural press, and his valuable treatise on "Stock Breeding," he is as favorably as he is widely known. Doct. M. is one of the few who join a thoroughly practical knowledge of agriculture to high scientific acquirements, and we regard it as eminently fortunate, not only for Houghton Farm, but for the interests of agriculture in general, that his services have been secured. It would be premature to say anything at this time of the work proposed. The more important topic would be, the work that has been done, and of this the readers of the *American Agriculturist* will be informed in due time. All we need say now is, the work has been begun and is progressing under the most favorable conditions. Results will follow in time.

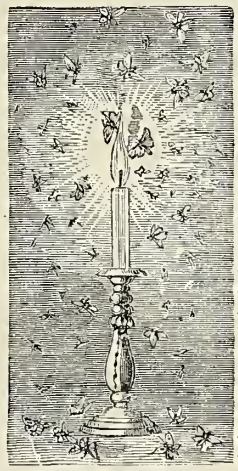
**A Sample of Many.**—The usefulness of the *American Agriculturist* is often attested in some such pleasant manner as the following. We might fill the paper with similar acknowledgements. "W.," of Mass., writes: "Though I am not a practical farmer, I am at all times interested in matters pertaining to agricultural pursuits; therefore I am a subscriber to, and a constant reader of, the *American Agriculturist*. I have received through its columns a good deal of practical information, some of which has been of advantage to me in my trade as a carpenter; hence, when I hear of a really good thing, I feel under some obligations to make it known to others, if I may through the columns of this valuable paper."

**Peaches in Florida.**—A correspondent at Waldo, Fla., noticing an item on the early shipment of peaches from Georgia, writes that they had fine ripe peaches on the Santa Fe Lake on May 14th., and that peaches have ripened there for several years in May. He says that a fine-flavored, good market peach is being largely planted in his vicinity, which should place the fruit in the New York market by June 1st, and at reasonable rates, if proper transportation facilities are afforded. He sent by mail, on June 25th, samples of a peach from Kennard's Fruit farm, near the Santa Fe Canal, which he says allows several pickings, from May 15th, and 20th, to June 30th, according to the season. The specimens reached us on July 1st. We take them to be the Honey peach, or a seedling of that variety, which reproduces itself very closely. They came in excellent order, and if not, as we suspect, the "Honey," their intense sweetness gives them a claim to be compared to boney.

**A New Cherry.**—"D. S.," Lancaster, Pa., sends specimens of a seedling cherry, which seems to possess excellent qualities. He states that it bears enormously, and continues for four weeks. As received by us, it is of about the size and appearance of "Coe's Transparent," with a very long and slender stem. It is of very rich quality, being acid enough for cooking, but not too much so for eating. It will no doubt prove a fine market fruit, as the specimens on the third day from the tree, showed no signs of decay. We are glad to see a renewed interest in the cherry, which has for several years, almost been a lost fruit, at least in the older States.

**The Duty on Quinine.**—The removal of the duty upon quinine has for some time been advocated. The great use made of it in malarious localities, where it is almost one of the necessaries of life, has induced some of the advocates of free Quinine to call the import tax upon it "Blood Money," and some of the papers have been very eloquent over the matter. At the recent extra session of Congress, Quinine was placed upon the list of articles admitted duty free, whereat the papers rejoiced that the fever-stricken sufferers would no longer pay tribute to a few wealthy manufacturers. The result was very different from that which the advocates of "free Quinine" looked for. The largest manufacturing house in this country, so soon as Quinine was put upon the free list, gave notice that they should discontinue its manufacture, whereupon the holders of the supply in this country at once advanced the price $.50 per ounce. The advocates of free Quinine, in their opposition to "wealthy manufacturers," overlooked the speculators, and the immediate result of their efforts is to increase the cost of the drug by almost one-third. If the duty was "Blood Money," what is this advance? Political economy can hardly be called one of the exact sciences.

## Sundry Humbugs.



When we advise our readers to do, or not to do, this or that, this advice is founded upon what seems to us to be the common sense and equity of the case. We are often applied to for advice in matters involving questions of law; this we can not give, as we make no pretence to legal knowledge. It often happens that an opinion given according to "common sense and equity" is not in accordance with law. This is so much the worse for the law, and still worse for the unfortunate persons who appeal to it, expecting to get justice. We have frequently described the tricks of the venders of various patent inventions and machines, who in one manner or another procure from those farmers and other persons who undertake to act as agents for the sale of their articles

NOTES WHICH ARE FRAUDULENT.

The victim, thinking he has signed a mere receipt or order for goods, is astonished to find that he has in a short time a note to pay. The chaps who took the note, signed as an order, sell it to a bank, or to some monied neighbor. If the victim refuses to pay the note, he is sued by the holder. It has frequently happened that the Courts have decided against the farmer, the law being in favor of the innocent holder of the note. Another fraud has been extensively practised in Iowa. The swindlers, sell some patent, or article, for a low price, take the buyer's note for $10, add another cypher, and sell the note for $100. When brought into the lower courts, these cases were decided in favor of the holders of the notes, as evidence of fraud could not be produced. One JOHN CLARK, of Marion Co., Iowa (Put his name in small capitals, Mr. Printer, as he deserves the honor), was not disposed to accept such a decision. He had given a note for $10; he did not cancel all blank spaces, nor fill up the blank designating where the note was payable, as he was told that an agent would be along to collect it when due. When the note came to maturity, it was found to be "raised" to $110—and made payable at a bank at Knoxville, Iowa. He was sued by the bank, and the Court decided, as the maker of the note did not fill the blank, the holder had the right to insert the place of payment, and that the raising of the note from $10 to $110 was a "breach of trust" (!) made possible by the negligence of the maker of the note.

SUCH A MONSTROUS DECISION,

Mr. John Clark could not abide by, and determined to see if all Courts were on the side of rascals, as against honest farmers, he carried the case to the Supreme Court of Iowa. Here there happened to be common-sense on the bench, and at once it was decided that, as the blanks on the note were partly filled, any tampering with or alteration of such note was

FORGERY—AND NOTHING LESS—

and that the innocent maker of the note should not suffer because the holder had bought a note that was forged. This decision, which we, who know little or nothing about law, can not see how it could be otherwise, will make the bankers and other buyers of notes careful as to the article they purchase. The Western papers speak of this decision as one of the most important made for years. How much trouble, how much litigation, how much loss would be avoided were our oft-repeated warning:

"FARMERS, BE CAREFUL WHAT YOU SIGN,"

regarded by every farmer in the country! In view of the fact that there are a large number of frauds organized with great ingenuity for the express purpose of preying upon farmers, and that the success of these, almost without exception, depends upon getting, upon one pretence or another, the signature of the farmer, we are warranted in advising every farmer (and indeed other readers) as an inflexible, invariable rule, to

PUT YOUR NAME TO NOTHING WHATEVER,

no matter whether it be called order, or receipt, or even your correct address. So sure as you write your name in any book, or on any scrap of paper in the hands of a stranger, you have taken a step which may lead to no end of trouble and great loss. *Don't write your name.* If the transaction can't be completed without that, let the transaction go. Give your written name to no stranger under any pretence whatever....Complaints now come from Kansas concerning a

"UNITED STATES HOME AND DOWER ASSOCIATION."

Last month mention was made of a similar Association in Pennsylvania. The circulars before us give no locality for this "United States Association," but it has agents in various parts of Kansas. This fact of no location, joined to that of a special appeal to clergymen, besides complaints from persons who have advanced money for loans, and after waiting six months have received none, make us think that this U. S. concern should be regarded with caution. One Postmaster in Kansas complains of being $45 out of pocket, and that there are a dozen others in the same State in a similar condition....We hear of

THE LIGHTNING RODDERS

in all directions; it reminds us of the old negro song:

"Some come in June, some in July,
But August brings de Blue-tailed-Fly,"

but the species of the genus Humbug, known as the Lightning (rod) Bug, knows not months. It comes with the early showers of April and buzzes about—stinging when it gets a chance, until frost comes. We can add nothing to our advice to let these Rodders and their Rods alone. If lightning rods are needed, there are makers, of skill and reputation, who can supply them. A correspondent in Wayne Co., Ind., writes that the Rodders have been in his town and "swindled several people out of more money than would supply them with the *American Agriculturist* during their whole life time"—which we do not doubt....It seems very odd to receive, after all we have said about lotteries, inquiries if some particular lottery is not safe. We can make but just one reply to such letters: Provided that lotteries are honestly conducted—which they seldom are, the chances are so much against the ticket holder that he is foolish to take the risk. We have just come across a new lottery scheme—to be sure, it is called a

"GRAND MAMMOTH CONCERT,"

and is alleged to be "In aid of the Nevada Building Association and Public Charities of Nevada." Virginia City has the misfortune to be the headquarters of the concern, the programme of which reads so like the Topeka and other earlier schemes that we should not be surprised to find the renowned Pattee at the bottom of this. The sending out of schemes has begun, and they will no doubt be everywhere. We can save many the trouble of writing to ask about this by giving them our advice in advance, which is to let all Lotteries, Gift-concerts, Distributions, or whatever the thing may be called, severely and entirely alone....Besides swindles especially for farmers, there are

SWINDLES FOR FARMERS' WIVES.

We learn from Cattaraugus Co., N. Y., that a couple of smooth-tongued chaps have been about, representing that they are makers of mattresses, for which they require *old* feathers; they propose to take away old feather beds and return them filled with new feathers, a sample of which they show. As strange as it may seem, some farmers' wives trusted these fellows with their beds, and are waiting yet—months after the appointed day for their new feathers. If "a bird in the hand is worth two in the bush," so is an old feather bed in hand worth two new ones that never come....Something new in the way of

FRUIT HUMBUGS

comes to us from Perry Co., Pa., where some chaps are taking orders for Apple-trees, grafted on the White Thorn, at 50c. each. Freedom from all kinds of insects, and early bearing, are the advantages claimed. Another novelty is a Grape which grows in a "tree-form" with a one-seeded fruit. Let both stay on the other side of the Canada border, where they are claimed to have originated....Ten or fifteen years ago our Humbug column gave each month several new schemes for

"SHOVING THE QUEER,"

the "professional" term for getting off counterfeit money. This business now and then makes a faint effort at revival, the majority of the circulars offering counterfeit money in plain language. These are schemes to entrap and swindle green-horns, for the chaps do not have any counterfeit money. The latest circular of this kind is a curious affair. It offers "Cigars of Green Tobacco," and has all the talk about making these "Cigars" that others apply to counterfeits. Then follow arrangements for

meetings, injunctions as to secrecy—a curious lot they are—and an injunction to "read the enclosed slip carefully." This slip, cut from a newspaper, gives an account of an arrest of a man for having some of this cigar money, but a bank officer pronounced it genuine and the man is discharged. As with the old style of "Queer" circulars, these of the Cigar stamp are signed with different names. We do not mention this as a warning to our readers, for no one can be swindled by these chaps who is not as big a rascal as they, but to show how this form of humbugging has altered within a few years..... We once knew an old gentleman who had a great fancy for attending auctions. He would buy all sorts of out of the way and useless things, such as others would not take for a gift, and send them to his barn. We once knew him to buy the pews of a church about to be torn down, and have them carted to that spacious barn. If any one questioned him as to his odd purchases his reply in effect would be: "It will come into use in seven years. Keep anything seven years and it will come out as good as new." We may say that to our knowledge the old pews, though not put into a church, answered a purpose "as good as new." We recently came across a humbug which called our old friend to mind, and made us wonder if there was any one who stored away played-out humbugs in a big barn, or other storehouse of rubbish, and brought them out "as good as new" at the end of seven years. It is just about seven years since that chap

STOPPED DIEING AT HOTELS,

and now some one has brought him out of the barn of things forgotten, and he dies "just as good as new." This dodge is old enough to be new to a majority of our readers, but it is a very well worn affair, and this time it appears with modifications. When it had its former run—and at one time it was worked very lively—the dear departed died at a New York hotel, which had no existence, and the keeper thereof told the story in much fewer words than the San Francisco landlord, who appears to be new at the business. This letter was directed to a gentleman in Attleborough, Mass., and it appears in the "Chronicle," a wide-awake paper of that place. The printed letter heading is:

HAMILTON HOUSE,
*San Francisco. Cal.*
P. O. Box 102, Station A. R. V. KINGSWELL.

The letter reads as follows:

SAN FRANCISCO, April 25th, 1879.

V. H. BLACKINGTON, Esq.,
North Attleborough, Bristol Co., Mass.

*Dear Sir:*—It is my painful duty to inform you that a stranger registered at this house as Mr. Blackington died of pneumonia on the morning of March 29th, after a short illness. We can find no one who knew him. But from among various memorandums found on his person your name and address is mentioned. This leads me to believe him to have been an acquaintance, at least. I have not written sooner, as I was in hopes that I could learn something more respecting him, but without avail. This course was necessary, inasmuch as I hold some valuable effects belonging to the deceased, which I must now make some disposition of as I am about closing out my business preparatory to a journey to Arizona, where I shall be too far out of the line of communication. Under the circumstances I feel that I shall be justified in sending the things to you. The deceased had but $50 on his person, which I permitted to be paid, to the attending physician and, for burial. The sum to which he was indebted to me is $30 for board and attendance. If you will forward that amount, I will, on the receipt of the same, express the things to you securely packed. Should the deceased prove a relative or friend, allow me to offer my sincere condolence, and assure you that everything was done for him that was possible.

Your best way to send to me would be to merely enclose the amount stated (thirty dollars) either in gold notes or greenbacks, together with any instructions you may wish to give, and address as below. An immediate answer will oblige, Yours very respectfully,

R. V. KINGSWELL,
P. O. Box 102, Station A. San Francisco, Cal.

This man if he didn't "know how to keep a hotel" any better that he knows how to write a humbug letter, had better shut up and go to Arizona. The chaps who died in New York seven years ago, used to have silver-mounted revolvers, a gold watch and chain, and lots of things. ....In medical matters we have a large budget, but all relate to the old dodge of

SENDING PRESCRIPTIONS FREE,

by those who have cures for Nervous Debility, Catarrh, and various unmentionable troubles. We have had a wide knowledge of these free prescriptions, and have found that in every case *save one*, they were absolutely fraudulent. They pretend to give the names of articles to be made up into a syrup, decoction, or other compound, but, in whole or in part, these

NAMES WERE ABSOLUTELY BOGUS,

that is, made up in imitation of scientific names, but in reality have no meaning, and do not belong to botany, medicine, or any other science. We make above one exception to the rule that all the prescriptions were nonsense. In just *one* case a genuine prescription is given, by a man calling himself a "Rev." He says that in view of the fact that some druggists do not have the ingredients, he has made arrangements with one Syracuse druggist in particular to put up the stuff for $3.50, and adds, "I can say of my own knowledge the price for which the remedy is sent, including the cost for putting it up, etc., is barely remunerative"—which for a "Rev." is—well—a little steep. A well known druggist in Mass. writes that he has the medicines in stock, and puts up the whole for $1—which leaves him a good margin of profit, and from our own knowledge of drugs, we should say that the chap who gets $3.50 has a good thing of it. The "Rev." says that the price $3.50 "is barely remunerative" for the "cost of putting it up, *etc.*" There's where it is. Our Massachusetts friends do not put in any *et cætera*. They can make $1 cover the cost of "putting it up," and leave a fair profit. The Syracuse chap finds $3.50 "barely remunerative," when besides the cost of "putting it up," there is the "*etc.*" What is this *et cætera*, that increases the cost by $2.50?—What is the *et cætera* to which the "Rev." man refers?—Can it be that "*etc.*" stands for the share of the $3.50, which the man of drugs pays to the "Rev." man?—This is a conundrum—we give it up.

**The Kansas State Board of Agriculture** issues a Quarterly Report; that for the first quarter of the present year was duly received, but we have been prevented from noticing it until now. As it is made up by Alfred Gray, the estimable Secretary of the Board, we knew in advance that it would be creditable, but we did not expect to find so much of interest to one not a resident of Kansas, as an examination shows to be the case. It is accompanied by a map, very minute as to details, but admirably clear, and must be of great value to every resident of the State, while the reports by counties upon the Diseases of Animals, Grasses, Fruit Prospects, Wheat, and other crops, must be most welcome to every farmer. Besides there are articles on Castor-Bean Culture, on Building-stones, Coal, and other geological products, and others of interest. The Report is not without its amusing feature; a newspaper writer over the name of "Eli Perkins," has in one of his letters warned emigrants, in effect, against "Drouthy Kansas." Mr. Perkins' "speculations" are met by an array of facts, presented with a pungency which must make Eli wish he had not touched a point upon which all Kansasians are sensitive above all others. We doubt if any older State is doing so much for its agriculture as Kansas.

**The Colorado Beetle and Paris Green.**—This pest has greatly mitigated its unwelcome presence this season. Now we should make an effort to finish him. The last brood will gather on the late potatoes, and if *every one* interested would exert himself, an end might practically be made of the insect. This has been an unfortunate season as regards accidents from the use of Paris Green. "Familiarity has bred contempt" for this dangerous substance, and there have been more horses, cows, pigs and fowls lost by poisoning, than ever before. There have been some curious accidents. A horse tied to a wagon in which was a can of Green, reached over, opened the can with his teeth, licked the poison, and died in a short time. A portion of a barrel of water, in which the Green had been mixed for application, was upset on a meadow and neglected. Cows pasturing on the field, ate the grass, and three died, and the others recovered with difficulty. A workman coming in to dinner, left the shaker, containing some "Greened" flour at the door-step, some fowls came, and pecked at the flour, when the man came out, the fowls lay dead. A calf chewed up a piece of paper, in which some Green had been wrapped, and which was thrown down carelessly, and blown about by the wind. The calf died. Such accidents as these, show that people have become careless. Carelessness always leads to loss, if not disaster, and carelessness with poisons is criminal.

**Raspberry Rust.**—"A Reader," W. Mill Creek, Pa., sends specimens of Raspberry leaves, which are of a bright orange color on the under side. This trouble is caused by a parasitic fungus, belonging to the Rust Tribe, and lives upon the juices of the Raspberry leaves. The bright color is due to a vast multitude of small, orange-colored spores, in forming which, the nourishment of the leaves is used up, and they soon wither and die.—A fuller account of a closely related fungus—"The Wheat Rust," is given elsewhere. If any one has tried a thorough application of the Flowers of Sulphur upon the first appearance of the Rust, we should like the results.

**Rawle's Genet, Not "Janet."**—Last month, p. 252, in a note upon this apple, we quoted "Downing's Fruits of America," for "Rawle's Janet," as the proper name. Mr. Charles Downing, in reference to this, writes us as follows: "For the proper spelling of this apple, I refer you to the report on nomenclature, by Dr. Wm. M. Howsley, of Leavenworth, Kansas, in the American Pomological Society's Transactions for 1871, page 74. The Dr. has thoroughly investigated the origin, history, etc., of Rawle's Genet, and also McAfee's Nonsuch, Large Striped Pearmain, and Fall Queen apples, and it would be well for those interested in Pomology, to carefully read the report."—As all who are interested in fruits and their names, may not have (and more's the pity,) the Transactions referred to, we abstract from the most interesting paper of Doct. Howsley, the following points. While Washington was President, and Jefferson Secretary of State, M. Genet was Minister from France. These dignitaries, (as dignitaries do to the present day), liked good things, and Jefferson, at Mr. Genet's dinner table, found apples, which he (G.) had sent him from France, and so admired them, that he (J.) procured cions of the variety from France, and Jefferson gave the cions to a Virginia nurseryman, Rawles, for propagation. There is much more of the story, but it is easy to see from this, that the name should be Genet; not "Janet."

**Mole Plow.**—"A. M.," Somerset Co., Pa. A mole plow may be made useful in heavy clay soil, by breaking up the subsoil, and opening a passage for the water in it to escape into permanent ditches, at the foot of the slope. But the effect is soon lost, and the plow must be used every year, to be of any considerable benefit. Light, sandy, or gravelly subsoils do not need draining, and to use a mole plow in them, would be labor thrown away. Miner's subsoil plow, is an excellent implement.

**Crossing Poultry.**—"W. S.," Clay Co., Mo. Crossing common poultry with pure bred cocks, is generally found beneficial, if the breed is well chosen. To cross Leghorns or Games, in the hope of getting large fowls, for instance, would lead to failure; and the egg producing fowls, such as Leghorns, Hamburgs, and Black Spanish, crossed on native hens, do not improve the kind at all. The best breed for improving common fowls, is the Light Brahma; this cross produces a large early maturing fowl, and good layers of large eggs.

**To Fatten a Milking Cow.**—"L. S. L.," Belvidere, Ill. Some cows that are milking, are difficult to fatten, as the food goes to milk, rather than fat. But fine corn-meal fed dry, will fatten a cow, and tend to dry up the milk. Give 4 quarts a day, in two feeds of 2 quarts each, for three or four days, then add a third feed of one quart at noon for a few days. Then gradually increase the quantity, until the cow will eat 6 or 8 quarts a day. If she does not fatten, or begin to fatten, then she is not one of the fattening kind. It will not be safe to stop milking, lest the exciting food may provoke fever and trouble with the udder.

**Cough in a Cow.**—"G. E. E.," Whitings, N. J. A cough may be caused by irritation of the air passages; by the effects of cold upon the lungs; by indigestion, and in young animals, by the presence of parasitic worms in the air passages. By neglect, a cough becomes chronic, and in cows, is apt to result in permanent disease of the lungs, which in course of time is fatal. General treatment for a cough, consists in giving laxative, and cooling medicines, such as Epsom Salts, in 8 to 12 oz. doses, Saltpetre, in 4 to 8 dram doses, and to apply Mustard paste to the throat or sides of the chest. Warm, soft food, and good nursing are beneficial.

**Keeping Water Cool.**—Water for the harvest-field can be kept cool a long while if put in an earthenware vessel wrapped by several folds of cloth, which should be kept wet. The water evaporates from the cloth and cools the vessel and the contents. Every time the jug is used, a little water can be spilled upon the surrounding cloth. Upon the same principle, the water vessels, in warm countries, are of porous, unglazed earthenware; the small portion of the water that oozes through them and evaporates from the surface, cools the remainder. In such countries these water jars are placed in the shade and in a current of air, a hint that should be heeded by those who use a cloth-covered vessel.

**Treatment of a Worn-out Meadow.**—Meadows that have been run down, become sod bound or covered with moss, sorrel, or other weeds, may be renovated without plowing. The old sod needs to be disturbed, but a thorough harrowing or a chopping of the surface with a disk harrow will disturb it sufficiently without plowing. Fresh seed is needed, and a dressing of lime may in many cases be all that is required in the way of a fertilizer. If it can be afforded, a moderate quantity of fine manure used as a top-dressing, and harrowed in just before sowing, will be of great benefit. The work may be done at any time before September, so that the grass and clover, the latter more particularly, should be well set before severe frosts occur. Orchard-Grass will thrive upon soils that are not rich enough for Timothy; but it is better to have the ground good enough for the latter even if the former is to be sown. Grass is a crop for which the soil can not be too rich, for if the growth is excessive it can be cut at any time and made into hay or fed green.

**Muck.**—The dry weather of late summer is the best time to get out a supply of this valuable substance.

Muck, when of the best quality, contains a large amount of nitrogen; and it is an excellent absorbent for liquid manures, and above all, is of great value in composting, as this process renders the elements of the muck available to the plant, while at the same time the muck prevents too rapid, and therefore wasteful, decomposition of the other materials of the compost heap.

**Driving after Eating.**—The digestion of a horse is governed by the same laws as that of a man, and as we know that it is not best for man to go at hard work the moment a hearty meal is eaten, so we should remember that a horse ought to have a little rest after his meal, while the stomach is most active in the processes of digestion. Many a good horse has been ruined by injudicious haste in working him with a full stomach.

**Storing Hay.**—When properly cured, hay keeps the best in a *large* mow in which it has been thoroughly packed. Hay thrown up loose on a scaffold loses that aroma and freshness which characterizes that from the center of a large mow. Hay does not demand the large spaces between the outside boards of many barns in order to preserve it. Put the boards close together and keep out the air and rain, and save the hay which would otherwise spoil by weather staining. It looks better, too.

**Butter Not Gathering.**—"L. B. K.," Hunterdon Co., N. J. The food has a great influence upon the milk. So has the condition of the cow. When the butter will not gather, but remains in the condition of a thick emulsion, it may sometimes be brought into order by throwing into the churn a gallon of cold water in which a handful or two of salt have been dissolved, and then operating the churn slowly to gather the butter. The cream may be improved in condition also by stirring a teaspoonful of salt in the jar in which it is kept. But to give the cows a daily feed of bran, or meal, if only one quart, is perhaps the best remedy, and its cost will be returned in the increase of butter. It pays to give this extra food even when cows are on pasture.

**Sour Grass on a Swamp.**—"P. T.," Maywood, N. J. Timothy will not grow on a swamp vigorously enough to crowd out the wild grass, although the tussocks have been cut off. The land should be thoroughly drained and well limed, 50 to 100 bushels per acre, and then, after a few years mowing, the Timothy will take the place of the sedges and keep it, if the drains are kept open. Manure will not help such land; lime will.

**Cooking for a Few Cows.**—"S." The practice of cooking food for cows is rarely followed now. It seems to have been more laborious than profitable. We would not advise it under any circumstances for 4 or even 10 cows. It may answer well for a larger number.

**Harrow for Grass Seed.**—"W. L.," Cresfield, Md. A light harrow should be used for covering grass seed. A flat plank drawn over the surface, will cover the seed sufficiently, and will smooth the surface. A brush harrow is an old fashioned and homely implement, but if well made, is both effective, and cheap.

**Where Should the Forelock Go?**—"H. D. M.," Somerset Co., Pa. The forelock may be placed under, or over the forehead band of the bridle. It is a matter of fancy. If the lock is short, it may go outside of the band: if it is long, it should go under. If long it may blow about, and annoy the eyes, and is therefore best under the band. There is no rule about it.

**Seed Corn.**—"A. R. S.," whose locality in Virginia we do not quite make out, in a letter giving an account of fair crop prospects, says: "There is much complaint, that seed corn does not grow," and very properly suggests, that this trouble may be avoided, by selecting corn for seed, and proper care of it afterwards. Corn taken at random from the crib in the spring, where it has been exposed to all weathers, can not give so good results as seed selected as our correspondent says: "Select at once, the earliest and best ears, and they will give an earlier and larger crop, than any from seed taken from the crib. He adds that: "Farmers will be surprised at the difference produced in their crop, by a careful selection of seed corn."

**The Mass. Agricultural College.**—We learn that the Hon. Chas. L. Flint, long the able Secretary of the Mass. State Board of Agriculture, has been elected to the Presidency of the College. We have not learned whether Mr. Flint accepts the position or not, but if it involves giving up the Secretaryship of the Board, we hope he will hesitate. Presidents are much more easy to find than good Secretaries.

**Time to Cut Fodder-Corn.**—If a crop of fodder-corn is worth the trouble of growing, it is certainly of sufficient importance to be properly harvested. The corn plant, like every other, starts with a view, so to speak, to the reproduction of its kind—the formation of seed—and all its functions tend toward this end. We may divide the life of the corn plant into three distinct stages—*germination*, or getting established; *assimilation*, or the preparation of food material, and *seeding*, or the ripening of the seed or grain. Up to the time that seed begins to form it is engaged in rapidly collecting materials out of which to make and perfect the seed, but this work gradually diminishes, and when the corn is full grown no food is being gathered. Besides the fact that the nourishment passes from the leaves into the ear, where it hardens and becomes partially indigestible, the soluble substances of the stalk are also changed into hard woody fibre to make it rigid and capable of bearing the ear. To get, therefore, the full benefit of the crop, it should be sowed thin enough so that each plant can have a good wholesome and natural growth, and then cut it *just* as that growth is finished.

**Burning Straw Stacks.**—This is one of the swiftest methods of destroying a large amount of valuable organic matter which, when used as bedding and an absorbent of liquid manure, is of great importance.

**Multiplication of Weeds.**—It has been found by careful and patient counting of the number of perfect seeds produced in a number of seed pods, and then counting the number of mature pods, that on a single plant of Purslane (*Portulaca oleracea*) there will be *one million* seeds matured. This will furnish a seed for every square foot of ground on 23 *acres*. Suppose each of these plants of the second generation does as well as the single parent, we will have the enormous sum of 1,000,000,000,000, as the seeds of the second generation from a single plant, or a seed for every square foot of 23,000,000 acres.

**Hurrying the Cows.**—If moderation is needed anywhere on the farm, it is in the driving of cows. A boy, or a dog, that will hurry, and therefore worry, the cows as they are taken to and from the pasture should be—to put it mildly—attended to. Boys, do not run the cows home, even if it is getting late, especially if it is on the way to the yard and their udders are full of milk.

**Raising Water for Irrigation.**—"G. S.," Salt Lake City. There is no wheel made, that will run by means of the water raised by it. The water-wheels in use at the lead mines in the Isle of Man, (England,) are ordinary over-shot wheels, but of extraordinary diameter; one of them is 60 feet in diameter, with only 8 feet buckets; the streams in that little island are small, but have generally a great fall. Unless there is a great quantity of water to waste, a water-wheel will be found far from economical, and a wind-mill will be both cheaper to begin with, and waste no water. A recently published book on Irrigation for the Farm, Garden, and Orchard, gives all information on this, and other points in irrigation. It can be had at this office, for $1.50.

**A Horse Breaking Down.**—"F. W. S.," Summerville, Ga. "Breaking down," consists of a severe sprain of the suspensory ligament, by which the fetlock joint loses support in bad cases, and comes to the ground. The treatment consists of bandages, blistering, and rest; but it is so serious that the services of a competent veterinary surgeon should be procured.

**Boys at the Fairs.**—There is no public gathering of people and things so pleasant and profitable to the farmer boy as a fair. Many a youthful farmer has had his interest in improved stock, new machinery, and fine fruits kindled by attending such an exhibition. By all means take the boys (and girls too) to the fairs.

**Rule in Buying Live Stock.**—Mr. Wm. McCullock who, of late, has been buying Shorthorns so largely in England, to establish a herd in Australia, gives as his rule in purchasing animals: "Pedigree first, beast afterwards; and unless both were good, I did not buy." This puts the matter in a nut-shell.

**Salt to Prevent Garget.**—"O. W. W.," Sterling, Mass., writes: "A friend having a herd of cows was considerably troubled with Garget. A portion of the bag would become inflamed and hard, the milk from that portion thick and ropy, and finally the inflamed portion would become useless. Four or five years ago he commenced giving to each cow, in her stall, a small handful of salt, every morning before milking, and has not had a single case of garget since he commenced the practice. He says he does not know that the salt prevents the Garget, but is inclined to think it does. His cows seem to be anxious for their salt the first thing in the morning. Not long since he omitted to give the usual ration of salt before milking, and the first cow he sat down to was so uneasy that he was reminded of the neglect, and gave the cows their salt, after which there was no trouble. The reason he commenced to give the cows salt in their mangers was, because when he put salt in any receptacle where the cows had it in common, only the stronger of the herd would get any, these driving away the weaker ones, which would soon learn that the salt was not for them, and cease all attempts to get any.

**Rye, for Soiling** in early spring, should, in the Northern States, be sown late in August or early in September, on rich, well drained soil. With proper care in cutting it before it heads out, it will spring up again, and in this way three or four cuttings can be had at intervals of a few weeks, before other soiling crops are ready.

**Rabbits.**—Persons having Rabbits of choice breeds for sale, keep the secret remarkably well. During the past six months we have had numerous inquiries asking where Rabbits of this or that breed can be had, but have been unable to return a satisfactory answer. Should any breeder advertise that he has the animals, people would find it out and get his pets away from him.—*Moral:* If you want to *keep* Rabbits, don't let any one know that you have them, but if they are *kept for sale*, advertise.

**Lucerne for Soiling.**—This clover-like plant takes a deep root and equals clover in the nutritious character of its herbage, while the yield, under proper treatment, is considerably greater. It stands a drouth better than clover, and will grow on dry and porous soil.

**Feeding Pigs.**—It is very important that pigs be fed with a plenty of nutritious food while they are young. If they are let to "run" for their living at this age, they will be stunted, and the profits of pork raising small.

**Iron in Grain.**—The use of iron wire in binding grain in self-binding reapers, has caused a new trouble for the millers. With all ordinary care in threshing, some bits of wire will get among the grain, and these make a deal of trouble at the flouring mill. The iron is separated from the wheat by the simple device of placing a magnet in the grain-spout, where it at once arrests the iron.

**Soiling** saves fences, one of the most expensive features of ordinary farming; prevents the seeding of weeds; and keeps stock from trampling down and wasting more fodder than they eat. It doubles the amount of stock which can be kept on any given amount of land, and there is a vast increase in the amount of valuable manure that may be saved. There is some additional labor, but the returns are so much greater, that Soiling is *the* system of the present as well as future agriculture.

**The Largest Wheat Farm** on the globe is along the Red River, in Dakota, near the town of Fargo. It contains 40,000 acres, and gives an average yield of 25 bushels per acre. The owner does not walk over it before breakfast.

**Root Crops vs. Fallow.**—The old idea of renovating the soil by a season of rest, after two or more similar and exhaustive crops have been grown, is fast going out of date, and the root crop is taking the place of the fallow. This change is a great improvement, and means a mixed husbandry and rotation of crops, in place of the single crop system, which should be practised only in a new country, and perhaps not always there.

**Drain Tiles.**—As so many farmers are laying down tile, it may be well to remind our readers, that there is a choice even in drain tiles; that there are good, bad, and indifferent tiles, and some worse than useless. A whole drain system, costing hundreds of dollars may be spoiled, and made useless by one bad tile; just as a chain or rope may be worthless, because of one weak place. But the rope or chain may be repaired without much trouble; while to find the defective tile, may require the undoing of the whole costly work. If a tile has a hole clear through it, it may perhaps be supposed to be all right: without considering the shape of that hole. In the drying, some tiles will lose their shape, some will flatten out a little and become oval, and in the burning, some will curve. Every tile that is not perfectly round, quite straight, smooth and square-edged, smooth within, free from lime pebbles, and thoroughly well burned, so that two will ring sharply, when struck together, should be remorselessly rejected. No thought of the makers or dealers interest should be entertained; it were better even to pay twice for defective tiles, and throw them away, than to use them. But that is wasting one's rights and money. No dealer should deliver imperfect tiles, and when one buys, he should stipulate to discard every unserviceable one, and do this without hesitation.

**Paint and Putty** cover up a multitude of defects. But they are very useful also in preserving machines, implements, and vehicles. There is no better time than now, when everything is dry, to fill up open cracks with putty, and cover wood and iron work with a coat of paint. A small quantity of varnish in the paint will much improve it, with but little addition to the cost.

**Dairying in a Warm Climate.**—"H. Q. A.," Beaufort Co., S. C. Where the climate is warm, and there is no cool spring, the following method can be used for setting milk. Dig a well as deep as possible, and fit a pump in it, to allow the water to be frequently agitated and changed, and thus keep it fresh. Procure a few deep pails with covers, such as are used in the Cooley Creamery, and attach fastenings to hold down the covers when the pails are submerged. The can should be weighted to sink it in the water. (See *American Agriculturist*, July, 1879, page 265.) Lower the cans with the milk into the well and to the bottom where the water will be the coolest. The cream may be cooled and the butter hardened in the same manner. A porous felt used for boiler coverings would answer the purpose of a non-conductor, and when wetted, as a cooler, by evaporation.

**Concrete Buildings.**—"J. A. T.," Britt, Iowa. Cellar walls and root houses may be made of concrete with advantage. Directions for this work were given in November, 1874, which number can be had for 15 cents.

**To Destroy Ants.**—Since the note on page 310 was written, we have seen two remedies suggested in the European journals. A correspondent of the "Gardeners' Chronicle" suggests to those troubled with ants "to get their druggist to dissolve some Arsenic in Honey, and place the mixture on pieces of slate or glass, where the ants will eat it and die. Be sure that the Arsenic is properly mixed with the honey [and be sure to keep children ont of the way]" adds the Editor. As Arsenic is very slightly soluble, we would suggest, to those who wish to try this, the use of the Arsenite of Potassa as preferable to Arsenic....The same journal quotes the German "*Ill. Garten Zeitung*" as saying that dilute Carbolic Acid is perfectly efficacious. One part of Carbolic Acid is mixed with 100 parts of Water, thoroughly stirred repeatedly during 24 hours, and any scum that may rise to the surface carefully removed. This mixture is said to kill the ants and not injure vegetation, and may be poured freely into their nests.

**Still More About Ants.**—"H. L.," Kankakee, Ill., writes in full his interesting experience with ants in his lawn, grapery, and elsewhere, from which we condense the following. He had tried hot water, kerosene, and sugar poisoned with Paris Green, without much success. Last year he had about 30 chickens of choice breeds, which were allowed to run at large in the grapery, and on a portion of the lawn. By mid-summer, he found that the ant-hills in the vicinity of the coops had disappeared, and observation showed, that the chicks would "gobble up" the ants whenever one appeared. He moved the coops to other parts of the grounds, where there were ant-hills, opened the hills, and both ants and their pupæ were greedily devoured, the pupæ being preferred. The experiment was repeated this year; some 30 or 40 chickens were hatched expressly as ant-killers, and at the time of writing—the end of June—"not an ant-hill can be found on my premises," though the ants are still troublesome in the house, where the chicken remedy can not be applied.....Several correspondents write that they have killed ants, by pouring kerosene into their holes. "F. D.," of Jacksonville, Fla., says that he thus got rid of a small black ant, with a poisonous bite, by the use of kerosene....."F. K.," Watertown, Mass., writes that a few years ago, ants appeared on a bank in the front of his house, and completely ruined about 15 feet of it. After trying every suggested remedy, without good results, he removed the sod from a portion of the bank infested by the ants, and thoroughly sprinkled the ground with benzine, applying it with a watering-pot. New sods were laid, and he has had no trouble since. We thing that benzine will destroy vegetable, as well as animal life, but the liquid is exceedingly volatile, and probably there was time between its application and the laying of the new sod, for it to evaporate....J. A. Fetters, a well known small fruit nurseryman, Lancaster, O., writes that if salt is sown broadcast, lawns will not be infested by either ants or grubs. The application should be repeated after a rain. Mr. F. says that salt is especially useful where bees are troubled by ants, and that he finds it beneficial to protect his strawberries from the white grub as well as ants. Mr. F. does not state the quantity, but says "sow broadcast as for wheat." As from 5 to 20 bushels to the acre have been used upon wheat, this is not very definite...."J. L. McC.," Wood Co., Ohio, sends his method of catching ants; he says: "Soak sponges in sweetened water, squeeze out, sprinkle with granulated sugar, and place them near the ants' nests. When the insects fill up the sponges, which they will do very soon, kill the ants by dropping the sponges into boiling hot water; prepare the sponge traps as before, and set again. I have tried this method and know that it is sure death to ants."...."H. O.," Waterloo, Ill., gives a sort of 4th of July method of disposing of ants. He says: "Get a bunch of fire-crackers (or more if needed), take a spade and push it into a hill, then pry the spade sideways, to make a cavity wide enough for the bunch to drop into it, light the fuse to the crackers, and you will witness a scene both amusing and useful."

**"Is Higher Farming a Remedy for Lower Prices?"** is the title of a lecture before the "East Berwickshire Agricultural Association," by J. B. Lawes, LL. D., F. R. S., etc., of Rothamsted. Successive bad seasons and immense importations, together with the higher price paid for labor, have paralyzed the English farmer, and led him to inquire: What next? Dr. Lawes presents no specific for these troubles, but inquires into the advice, so frequently given, of meeting lower prices by increased production. It is possible to greatly increase the production on a large part of the land, but to do this there must be an importation of manures and fertilizers from without—and it is this method which he understands by "high farming," when the farm becomes a factory where imported manures are made into food, just as wool and cotton are manufactured into cloth. Excepting the extra cost of the manures, the charges for growing a crop do not increase very greatly; and if the amount of produce bear a constant ratio to the fertilizers applied, then it would appear that high farming would be a remedy for low prices. But three times the quantity of manure does not bring three times the amount of produce. Beyond a certain limit, the manure costs more than the increase of the crop. It is a common fallacy that, in feeding stock, the cost of the food will be covered by the meat and other products sold, and the manure costs nothing. In a true account something must be charged to the manure.—The bulk of the paper is given to tables and the discussion of his experiments at Rothamsted, proving the truth of the statements made above; that the increase of the crop does not keep pace with the increase in the amount of manure applied to the land; and also, that manure made on the farm costs money. "So far, however, as increased production is to be attained by the exercise of freedom, intelligence, and economy in management, so as to get the maximum amount and value of produce from the manure that is applied to the land, and the maximum amount and value of meat and manure for the outlay in store-stock and in food, increased production is a necessity of the times and would prove the best remedy for lower prices of farm produce."

(*Basket Items continued on page* 319.)

## Wheat Insects: The Hessian Fly—The Midge.

The U. S. Entomological Commission, have in hand an investigation, which is of vital importance to every wheat-grower in the whole country. The first step towards the abatement of an insect pest, is to learn its present extent and condition,—in fact all about it, that observation can teach. This investigation, while made by the Commission, is in the special charge of Prof. A. S. Packard, Jr., and those who know his thoroughness, will feel sure that it could not be in better hands. But for one man to visit the principal wheat regions of the country, and make observations in each, would require years. Prof. Packard must have help, and the farmers, for whose benefit the work is undertaken, are those who can best help him. Even those living where the Fly and the Midge are unknown, should not be indifferent to the work. Exemption this year, is no assurance of a like freedom next year, and the first appearance in a locality, of destructive insects, is an important part of their history. The Commission has issued a circular, asking help from the farmers, and we show our appreciation of its importance, by giving space to it. In doing this, we ask our readers to give it a careful perusal, for it is very instructive to all wheat-growers, and then to lend their aid to the work in the manner there indicated.

The circular says: "In brief, the habits of the Hessian Fly are as follows: In May or June two or three small, reddish-white maggots may be found imbedded in the crown of the roots of the wheat, at or near the surface of the soil, causing the stalks and leaves to wither and die; the maggots harden, turn brown, then resembling a flax-seed, and change into little *black* midges with *smoky* wings, half the size of a mosquito, which appear in spring and autumn, and lay from twenty to thirty eggs in a crease in the leaf of the young plant. Specimens of the fly may be obtained by sweeping the wheat when three or four inches high, with a gauze net. Please send me specimens of the fly, eggs, maggot and "flax-seed," in vials of alcohol, with notes as to the date when found, and full information as to the insect enemies and parasites.

The *Wheat Midge* is apt to be confounded with the Hessian Fly. It is a small, mosquito-like fly, *orange yellow*, with clear wings, which hovers over fields of young wheat in June. It attacks the heads of the wheat, laying its eggs when the wheat is in blossom. On hatching, the maggots crowd around the young kernels of wheat, causing them to become shrivelled. The maggots in July and August descend into the ground, spinning a round cocoon smaller than a mustard seed, remaining an inch below the surface till the following June.

Information regarding the following topics is respectfully solicited; to be forwarded at the close of the season:

1. When, where, and how are the eggs deposited?
2. When does the maggot appear?
3. When is the "flax-seed" state of the Hessian Fly, or the seed-like cocoons of the Wheat Midge assumed?
4. At what date do the Midges appear in spring and autumn?
5. Look for minute parasites in the eggs and maggots. They may be bred by placing the eggs and maggots with the wheat in bottles covered with gauze, and the parasitic flies preserved in vials of alcohol.
6. Statistics as to abundance and losses in your town.
7. State the best preventive remedies, as deep plowing or burning in the fall, or the rotation of crops.

Specimens of the wheat affected by these insects, and of the eggs, maggots, and flies, together with their parasites, in alcohol, are requested. When mailed, the alcohol can be poured out, and cotton soaked in alcohol will keep the specimens wet until received. Packed in a tin box they can be sent through the mail, to A. S. Packard, Jr., *Providence, R. I.*"

## Cotton-Worm.—Important Investigation.

The ravages of the "Cotton-worm" (so-called), which, by seriously diminishing the cotton product, affect not only the cotton grower, but some of the most important industries of the country. In view of these facts, Congress made a special appropriation for a thorough investigation of the habits of this insect, in order that its destructive work may be checked. For reasons, stated in another column, Congress has transferred the appropriation from the Department of Agriculture to the Entomological Commission. The Commission have placed this investigation under the special charge of Prof. C. V. Riley, under whom it was commenced while he held a position in the Dept. of Agriculture. Prof. R. has for some time been in the field, our last letter from him being dated Marion, Ala., in which he encloses a new circular issued by the Commission. As it is important that the request to cultivators for aid in the work should reach every grower of cotton, we give the questions to which replies are wished, with the remark that it is desirable that the answers to these be made *whatever previous circular* may have been replied to.

"1. During what year was cotton first grown in your State, county, or locality?

2. How many years elapsed after cotton first began to be grown, before the worm began to work upon it?

3. Is the worm most dreaded after a mild or after a severe winter?

4. Do wet or dry summers favor its multiplication?

5. What is the earliest date at which you have known the worm to appear in spring?

6. In what locations does it most often first appear?

7. What is your experience, and what are your views, as to the winter habits of the insect?

8. What natural enemies of the worm among birds, quadrupeds, or insects, are you familiar with?

9. What has been the result of the efforts to allure and destroy the moths, and what methods have proved most satisfactory? Give your estimate of the relative value for this purpose of poisoned sugar, molasses and vinegar, or other poisonous substances, and fires.

10. Are the moths most attracted to sweetened substances when smeared upon trees, boards, etc., or when contained in vessels in or near which lamps may be lighted?

11. Are any flowers known to be attractive to the moth? If so, specify them and their season of blooming.

12. What do you know, from your own observation, of the influence of jute grown near or with the cotton?

13. Has anything been found more generally useful and applicable, or cheaper, than the use of the Paris Green mixture, or of Arsenic in some form, to destroy the worms?

14. Have you known of any injurious effects following the use of this poison, either to the plant, to man, or to animals?

15. State what you consider the best and most effective method of destroying the worms in your section.

16. State the cost per acre of protecting a crop by the best means employed.

*Correspondents will confer a favor by numbering the replies to correspond with the questions, and by writing on but one side of the paper.*

Prof. Riley will be glad to receive figures, either photographs, or drawings, of machines or contrivances employed for the wholesale use of the Paris Green mixture,—either in the fluid state or as a powder; or any other kinds of machines or traps employed for the destruction of the insect. Models of such are still more desirable, and may be sent by express, unpaid, to the headquarters of the Commission. Correspondence is solicited whenever any expense must attend the carrying out of these requests, in order that authority may be given to make

the necessary outlay and thus insure the refunding of the amount. Replies should be sent before October next." All communications should be addressed to Chas. V. Riley, Chief U. S. Entomological Commission, Department of the Interior, Washington, D. C.

## The Entomological Commission—The Department of Agriculture.

Congress "builded wiser than it knew" when it established the "Entomological Commission," primarily to investigate the Rocky Mountain Locust or Grasshopper. The Governors of the Locust-ravaged States applied to Congress for relief; it was understood that the Department of Agriculture under its then Commissioner could do nothing, and this opinion was manifested by establishing a Special Commission under the Department of the Interior. This Commission consists of the well known entomologists, Prof. C. V. Riley, Prof. A. S. Packard, Jr., and Cyrus Thomas, Esq., and much good work was done, as the reports show. When the Dept. of Agriculture had a new (and novel) Commissioner, and he, in an interval of good sense, appointed Prof. Riley to the charge of the entomological work, it was felt that the Dept. was equal to any entomological investigation that might come before it. Hence when an investigation of the Cotton-worm was ordered, the appropriation was placed in charge of the Dept. of Agriculture, and the work was actually begun, by Prof. Riley, as the Entomologist of the Dept. As stated some months ago, Prof. Riley, finding his usefulness interfered with, resigned his position in May last. But by getting away from the Dept. the country did not lose his services. Fortunately the time for which the Entomological Commission was established has not expired, and so long as it continues to work for the benefit of the farmers of the country it will no doubt be continued. So soon as Prof. Riley left, Congress expressed its opinion of the Dept. of Agriculture by transferring this Cotton-worm appropriation to the Entomological Commission, of which Prof. R. was the Chief. This Cotton-worm investigation, concerning which more will be found elsewhere, and the proposed investigation of wheat insects, also noted in another place, show that the Commission has planned for work, the results of which can not fail to be of the greatest value both North and South. But isn't it funny, to have a nominal Department of Agriculture, and put out some of its most important work to a Special Commission?

## American Products in England—Prizes for Our Butter and Honey.

The great Dairy Exhibition held in New York in Dec. last, had its interest greatly enhanced by a remarkable collection of rare and curious cheeses from various foreign countries. This contribution was made by Messrs. H. K. & F. B. Thurber & Co., of this city, and the same firm is doing a good service in making American products known abroad. Not only have our dairy products been sold in England as English, but a large number of peculiarly American articles, such as canned and dried fruits and vegetables, the trade being wholly in English hands, had their brands and labels so changed that the consumer bought them as English products. As the farmer is directly or indirectly concerned in the production of these articles, our readers will be glad to know that they are hereafter to be sold as American, and upon their own merits. The Messrs. Thurber have opened a branch in London, for the purpose of making American goods known abroad. One step towards bringing American products into prominence was in entering American Butter and American Honey for competition at the exhibition of the Royal Agricultural Society. In a note to the Editor, dated July 2d, they say:—"We have just received a cable dispatch from our London office, stating that the highest prize for American Butter at the Royal Agricultural Exhibition, held in London, beginning June 30th, had been awarded to butter made by John S. Murray, Delhi, N. Y., and that the second prize was taken by butter made by John Stewart, Anamosa, Iowa, both of whom were represented by our firm; and also that the highest prize for honey had been awarded to American Honey, exhibited by our firm. The exhibition of the Royal Agricultural Society this year was of more than usual importance, owing to the fact that it was open to the productions of all the world, giving it an international character, which previous exhibitions of the Society had not had. We have not yet heard whether other branches of American food products were on exhibition or not, as Honey and Butter were the only two articles exhibited by us. It is to be hoped, however, that the great staples in the cereal and provision lines were represented, as prizes taken at these exhibitions bring the fine quality of American productions to the attention of consumers, create a demand, and thus help American producers to obtain a better price for their products than they otherwise would have been able to get."

## Editorial Correspondence—Notes by the Way.

[Mr. Orange Judd left home the middle of June for a somewhat extended tour among our Readers, particularly at the West,—not so much to "write up" his journeyings, as to mingle with practical men, observe and talk over their "ways and means," their modes of culture, etc. We give below a first installment from his memorandum book of Notes by the Way.—Eds.]

### Crop Prospects.

*Burlington, Iowa, July.*—Reasoning from analogy—from the "nature of things,"—I have not looked for very good crops generally, in our country, during 1879. After two successive years of productiveness considerably above the average, taking the country as a whole, we could hardly expect a third good year. Yet, judging from what I have seen, in a journey of over 1,200 miles, by daylight, between N. Y. City and here, through parts of Southern New York, Northern Pennsylvania, Ohio, and Indiana, and Central Illinois, the outlook is certainly very encouraging. Farmers have yet, perhaps, to run the gauntlet of unfavorable harvest weather and early frosts; but from careful, constant observation, and diligent inquiry, I gather that the present prospect through the region referred to is quite as good as at this time last year. Leaving the cars on the "Western Reserve" of Ohio, I rode many miles with and among the farmers, and found them in good spirits. The Wheat fields show a fair to heavy straw, with heads well developed. Plenty of fields promise 20 to 30 bushels per acre. The Hay crop is fair, not a heavy bottom, owing to lack of early rain, but thickening up now, and pushing forward well. I noticed considerable old hay, in barns and stacks—now selling at the farm for $6 to $9 per ton, according to quality. Oats look finely, as a rule. The Corn is small as yet, owing to late planting, but it has a healthy look, and with a continuance of the present favorable weather, wheat, corn, oats, and potatoes, will be fully an average crop, or better. The above remarks apply also to Northern Indiana and to Illinois, in the counties crossed between Chicago and Burlington, and so far as I could learn northward and southward of this line. An intelligent observer at Mendota, and another at Galesburg, Ill., agreed in saying that "we usually have good farm crops *hereabouts*, and this year they promise excellently, except that grass is a little short."—I have just talked with the enterprising Editors of the "Burlington Hawkeye," who on Saturday received direct special telegraph reports from over seventy localities in Southern Iowa, and Southern and Western Illinois. While there are exceptional unfavorable local accounts, the general report is in the highest degree satisfactory. "The stand of corn is magnificent," is the language of the Editor, in summarizing the reports. The acreage is increased, and the condition most vigorous and promising. In S. W. Iowa the Chinch-bug has done considerable damage to wheat, and Rust has affected the crop in limited localities, but the increased acreage and general good condition will give a full average crop, if not exceed it. On Saturday I visited some wheat fields near Burlington, already cut, and the thick sheaves, good heads, and plump kernels, are full of promise. Harvesting will be in full blast before this week closes. Oats are good in some places, poor in others; in the aggregate a little below the average, according to these reports. I call them good in Ohio, Indiana, and Illinois, where I saw them. Upon the whole, the reports from 100 miles and more east and west of this point are decidedly encouraging. "Corn has not been better at this season, in Western Illinois, since the big crop of 1870."—My tour will take me into Northern Iowa, Minnesota, and Wisconsin.

P. S. *Chariton, Iowa* (130 miles west of Burlington). I can confirm the above report as to corn. In coming from Burlington here, we have seen numberless great fields, in most vigorous growth, already waist high and more. We have seen thirty or forty fields of wheat in the shock. The generally wide space between them, and their smallness, does not indicate a large yield. Other crops now growing look well; corn is just magnificent, as compared with anything I have before seen this year, or indeed in other years at the same period.

### Old Friends.

Quite unexpectedly, I met in Lorain County, Ohio, a well-to-do farmer, Mr. Alfred Gillette, who was my neighbor and school-mate, 45 to 47 years ago, near Niagara Falls, which was then almost *the* "far West," though even then many of our neighbors pulled up takes from time to time and pushed on in emigrant wagons, to Ohio and Michigan, and later to Illinois—a great attraction being the fact that in the oak openings of Michigan, and especially on the prairies of Illinois, they would find land ready to work, without the heavy "clearing" required in the densely timbered regions south of Lake Ontario, between the Genesee and Niagara Rivers.—It was a most enjoyable treat to talk over with friend Gillette, the struggles of youth, when we worked hard on adjacent farms, gathered all the advantages we could from the district schools, and while yet scarcely grown up boys, taught in neighboring districts during winter. We discussed the peculiarities of old neighbors, and followed out the subsequent history of the boys that grew up with us, few of whom now survive. The old family physician, Dr. Cook, the greatest man we knew, because he had "been to College" and was wonderously learned, filled our boyish heads with an ambition for "larning," and when the writer struck Eastward, friend G. went to Oberlin on a like errand. He afterwards taught in some of the Ohio schools, and finally settled down at farming near Oberlin, where I found him enjoying a good farm, and independence, the result of many years of hard but intelligent work and economy. It was, of course, gratifying to me to learn that during the past quarter of a century he has had the *American Agriculturist* as a suggestive counsellor. It would have been still more gratifying, if he had carried into execution, his oft-formed purpose of sending for its pages some of the practical suggestions gained in his experience. Thousands of others in like manner fail to write out what would be of great use to their fellow cultivators. He has had the pleasure of aiding other young men, who are now settled upon good farms. While he has made profits in general farming, his best gains, I judge, came from raising sheep, of which, at one time, he kept some 400 fine wools. He says one year he took the premium over all others, in LOSING sheep.

### Sheep Freezing to Death in June.

Some years ago his sheep had just been shorn and turned out to pasture. A cold storm came on, but being unwell he forgot his coat-less flocks. A neighbor called his attention to them, and on going out he found in one flock of 100 valuable animals 87, I think it was, dead or so chilled that they soon died. Of his other flocks he lost less, as they were partially protected. One large flock gathered in a bushy grove, and with considerable care, nine-tenths of them were saved. I tell this incident to suggest to all owners of sheep the importance of carefully protecting newly-shorn animals, not merely from cold storms, but from chilly nights. Though they may not be fatally affected by cold, there is a great change to them in removing a heavy coat of warm wool, and the cold of an ordinary night is enough to induce diseases that will greatly deteriorate their value. Think of a man wearing four or five thicknesses of heavy woollen garments, day and night, until into June, and then having all these removed in a day except a thin gauze undershirt, and having his bed out of doors upon the ground without mattrass or coverlet!

### Dry Curing Pork and Beef.

Mr. Gillette informed me that he had for a number of years practised, with entire success and great satisfaction, a method of dry curing, which supplied far better and sweeter bacon and ham than the usual brining process. After killing, the carcasses dry and thoroughly cool, 24 hours or so. The sides and hams are then rubbed over with molasses—he uses the Porto Rico. Salt is heated in an iron vessel to a dry fine powder, and almost "red hot," when it is spread quickly over the smeared pork, and when cool enough is thoroughly mixed in with the hand. After about three days the same pro-

cess is repeated. They then lie in a dry and cool place for a couple of weeks, when they are ready for smoking. No brine is used to toughen the pork or hams, or affect the flavor. The smoking is continued at intervals, with care not to get up a heat by a continuous fire. Two fires a day are made with corn cobs, or dry oak or hickory. The total smoking, that is the time the meat is well surrounded with smoke, is 100 to 120 hours in all. After smoking enough, the bacon or hams are packed dry in barrels, or hung up, and kept dry and cool. That to be kept into or through the next summer, is rolled in plenty of newspapers, packed in barrels, and covered over with a thick layer of dry wood ashes. He says he has never lost a pound, and never failed to have bacon and hams sweet and delicious to the taste, and commanding the highest price in the market. We should add, that in curing very large hams by this process, as a safety precaution, he makes small openings down to the bone joints, and fills them with the hot salt.—He cures BEEF in the same way, but only puts it through the first salting process. Indeed some of his neighbors give pork and hams only the first salting, but he deems the second application, above described, as better, and insuring perfect success always.

### An Ohio Cheese Factory.

Friend Gillette drove me out to the South Amherst Cheese Factory, which is conducted as follows: The Messrs. Eggleston, Bramon & Co. own the factory and apparatus, receive the milk from the producers, attend to all details of making, curing, and marketing, deduct 1¾ cent per lb. for the cheese and 4 cents per lb. for the butter made, as their pay, and the balance, received every month, is divided among the milk producers, in proportion to the number of pounds of milk each has furnished. (The Factory charge last year was 2 cts. per lb. for cheese, and 5 cts. per lb. for butter). The sales are made at the discretion of the manufacturers, but they are glad to divide the responsibility as to the best time of selling, by taking counsel with the owners. The milk brought in at evening, is set in small cans in cool water, and the cream removed in the morning and made into butter. The skimmed milk is then mixed with the fresh morning milk, and made into cheese. We understand that the cheese thus made sells within one cent a pound of that made from whole-milk, with no cream removed. —About one pound of butter is taken from 86 lbs. of the night's milk.—Ten pounds of milk yield one pound of cheese, on the average. This Factory received the milk of 600 cows during 1878, from which it produced about 206,000 lbs. of Cheese, and 35,000 lbs. of Butter.—In 1877, the producers received $1 for each 100 lbs. or 50 quarts of milk; in 1878, sixty cents for each 100 lbs., or say 1⅕ cent per quart, reckoning milk at 2 lbs. per quart.—The producers received in 1877 about $50 per cow on the average. In 1878, about $35 per cow. Some were dissatisfied with last year's results, and only 500 cows contribute milk this year. The producers at a given hour, morning and evening, strain the milk into a large can or cans, standing upon a platform on the side of the street, at home. Contractors pass around on specially fitted long platform wagons, and gather these cans and take them to the factory, receiving for this and returning the cans, $2 per cow for the season, from April to November. Each producer receives back daily in his cans his proper share of the whey from the factory. This is valued at $5 per cow and upward, for feeding to calves and swine, and is taken into account in estimating the profits. The whole working is regular and simple. The entire dairying work upon the farm is reduced to milking and depositing the milk in the covered cans by the roadside, twice a day, receiving and using the returned whey, and washing the cans.—I have only given a general outline of the system, without going into details of manufacture, profits, etc. The fact that such establishments are very frequent in many sections of the country, and are multiplying instead of diminishing, is evidence of their utility. The better products obtained, and of course better prices, are in their favor. Whether the proprietorship plan above described, or the coöperative one—the producers owning the factory and employing agents to make and sell the butter and cheese is the better, is still a question.

### Fultz Wheat—(Winter).

Mr. Gillette scores one point in favor of the U. S. Agr. Department. He received therefrom a parcel of wheat which he has multiplied until he now exhibited to me a 4-acre field that I estimate will yield 120 to 140 bushels this year, or 30 to 35 bushels per acre. It is on heavy clay land, from which two successive corn crops have been taken, the first from a pasture sod turned under. No manure has ever been applied to the land, I believe. The Fultz is a white-chaff, bald variety. It was sown in drills, and tillered from 10 to 25 stalks—15 to 18 stalks being very common. Unfortunately this has been, accidently, mixed with some of another hard-bearded variety, and can only be saved for pure-seed by careful and laborious hand-picking.

### Permanently Good Land.

The soil is, in one sense, the farmer's machine for manufactoring crops. Its *wearing* power is an important element in its valuation. A good loam, while easy to work, may produce well during a few years and wear out; the same of a dark peat or vegetable mould. A strong clay soil, on the contrary, is hard to work at first, and but moderately productive, except when lying so as to have a natural drainage, and at the same time have a considerable accumulation of humus (decaying vegetable, leaves, etc.), in its surface. But when freed from water by under-draining, or by a thorough system of ridges and deep dead-furrows, and thoroughly broken up by tillage and exposure to frosts and ameliorated by mixing with it turned under sods, or green crops, or manure. There is no better, permanently good farming land than the original strong clay soils. They will last, and be productive generation after generation, with small expense for foreign fertilizers. They contain inexhaustible supplies of fertilizing elements, that are gradually released as wanted by the crops. The straw produced suffices to keep them mellow enough for the roots of plants. With their straw, and an occasional clover crop turned under, they increase in fertility with successive cropping.

Some soils of this class may in time need the addition of phosphates, though in many cases the phosphoric acid seems to be abundant after 40 or 50 or more years of continuous cropping. I write this at evening, after spending a day in examining some clay farms on the "Western Reserve," and studying the experience of those who have been on them 30 to 40 years. Some of the most thrifty farmers tell me that they neither need nor use any other fertilizers than an occasional plowed-in sward. They save and apply all the barn-yard manures produced, and when they can buy at the village stables manure for 50 cents per wagon load they get it, and apply it upon the surfaces of meadows, or upon potato or corn ground, which has not recently had a sod turned under. When produce is high, or they have special need of manure for particular fields or crops, they can afford to pay as high as $1 per load if they do not have to haul it over three or four miles. That it will not pay to give over $1 per full farm wagon load, as plowing-in sod or green crops would be cheaper.

### A Grindstone Manufactory.

I visited in North Amherst, O., the Halderman Quarry, and chanced to meet as one of the foremen an old subscriber of the *American Agriculturist*, Mr. Henry Ludwick, who took me through the works. This is similar to, if not a continuation of, the noted Berean deposit, and it is claimed that the stone here has a better "grit" for grindstones. The deposit extends for miles (I know not how far). At this quarry the sand-stone, nearly white, is in a solid deposit, without any perpendicular seams or cleavage, and goes down to an unknown depth—improving with the descent. They are working some 65 feet below the surface. There is some horizontal cleavage, sufficient to allow partially regular splitting. Deep grooves are cut down with picks, through a layer, on all sides of a large mass. This is broken into smaller squares or pieces by picked grooves and iron wedges. It is then split horizontally into sheets or blocks of the desired thickness. The blocks are rough dressed with picks, and in part sent to cities east and west as building (dressed cut) stone, and in part worked into grindstones. For the latter purpose, the large blocks are roughly worked round with picks. A square hole is picked and finished with chisels through the center, and the great stones, weighing anywhere from 100 to 4,000 lbs. or more, are put upon the shaft (mandril) of an immense turning lathe. While revolving rapidly, a man with a sort of pointed crow-bar turns the stone down to the desired diameter, thickness, and smoothness, when they are slipped off the lathe, and are ready for market. They are sold by the pound. I measured a few of those the weight of which was marked, and found them thus:

| *Diameter.* | *Thickness.* | *Weight.* |
|---|---|---|
| 4½ feet. | 6 inches. | 1,112 lbs. |
| 5 feet. | 8 inches. | 1,832 lbs. |
| 5 feet. | 10 inches. | 2,290 lbs. |
| 6 feet. | 10 inches. | 3,298 lbs. |
| 6 feet. | 12 inches. | 3,958 lbs. |

The last, a pretty big grindstone, lacking only 42 lbs. of weighing two tons! Larger stones even are sometimes worked out. They can get them of any size, however large. These one or two ton grindstones were handled with all ease, by one or two men, using cranes and steam power.—There is evidently material enough in this part of Ohio to supply all the good grindstones and whetstones the whole world will want for centuries to come.

### Wood and Timber for the Prairies.

*Omaha, Nebraska, July.*—Through the kindness and courtesy of the Hon. O. F. Davis, we have enjoyed an instructive ride through the country southwest of Omaha, one special object being to see the 40 acres of forest grown on the high open prairie, by Mr. J. T. Griffin. He was originally from Otsego Co., N. Y.; then resided at Oakland, Mich., and settled here in May, 1856, taking up a farm of 400 acres. He was absent from home, but we met him on the way to the city, and gathered some of his experience. He first planted Black Walnuts in the fall of 1856, making holes about one foot apart, dropping in the Walnuts, and covering about two inches deep. They started well in spring, grew finely, and in the spring of 1858 were planted out in the fields, 10 feet apart, in the quincunx order. This, he says, was far too thickly, and it is very evident. There is a multitude of small, well-grown trees. Where, from any cause, one was left 20 or more feet from the others, it has grown much larger. As it is, Mr. G. has a dozen acres or so of fine, straight, thrifty Black Walnut trees, yielding a good deal of fruit (nuts), and worth, acre for acre, many times as much as the cultivated land. While young, occasional trees were trimmed a little, but they usually grew straight and erect without it.—MAPLES.—In 1860 he gathered Maple seed as soon as ripe in May, and at once sowed it in drills near together. It sprouted quickly, and by autumn there was an immense supply of young Maples a foot high or more. Mr. G. says the great point is to sow the seed shallow just as soon as it is well matured and before it has time to dry. They were transplanted 2 to 3 years from seed, and half a dozen years from the seed he began cutting out for fuel, and in 10 years the 8 or 10 acres supplied all the wood for fuel wanted on the farm. He planted the Soft Maple, gathering the seed from wild trees growing along the river. He grows successfully the White or Green Ash, and Cotton-wood, taking young plants of each from the native groves. Hard Maple does fairly. Chestnut grows, but does only fairly. Honey Locust is good, and he has a large number of thrifty trees. The Black Locust would be first rate, but the borers destroyed it after a time; yet he would grow some of them. In order of value, Mr. Griffin prefers: 1st. Honey Locust for timber, etc.—2d. Black Walnut for timber, fuel, etc.—3d. Soft Maple for early fuel.—4th. Cotton-wood for fuel, and many uses as timber, set 4 to 6 feet apart, and as they enlarge, cut out for fuel. Mr. G. says he would guarantee to obtain any number of young Cotton-wood trees wanted for planting for $2.50 per 1,000, loaded on the cars. They grow rapidly almost anywhere, and there is no reason why prairie farmers should not have them in abundance. He advises sowing

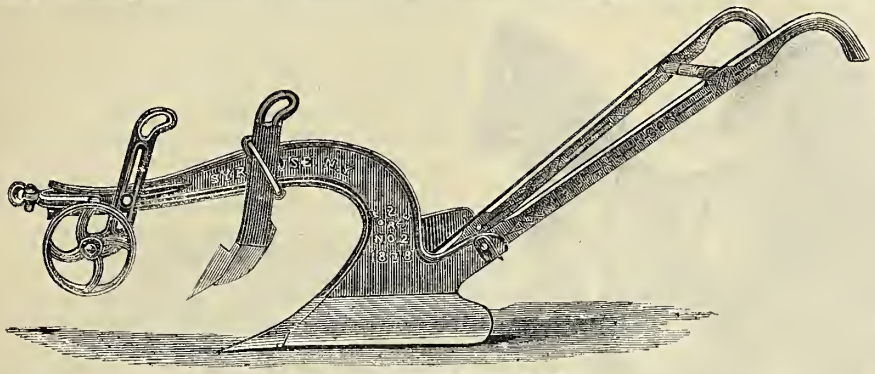
acorns (Burr or White Oak) wherever Cotton-wood is planted; the small oaks will come up, and grow well as the Cotton-wood trees are removed. I noticed on his farm long border lines of large Cotton-wood trees 10 to 18 inches in diameter, which presented a pleasing appearance at a distance. His groves and belts of trees show what can be readily done. Such groves of large and small dimensions are becoming a feature of the Nebraska prairies.

### Apples.

Mr. Griffin has some good apple orchards. The trees are large and thrifty; but some of the best of them growing along the south side of one of the groves of trees, which act as a wind-break, are dying. He thinks they are too warm in hot weather, and that the wind-break groves should be planted on the *south* side; that they will thus stop the force of the northern winds about as well, and the trees will be in a more uniform atmosphere; that it is not the degree of cold that injures the trees, but the variations of temperature. This putting wind-breaks on the south to break the force of the northern winds is a novel one, to the writer at least. For varieties, Mr. G. says the Northern Spy and Ben Davis are the best for Nebraska.

## The Syracuse Chilled Plow.

A few weeks ago, a dialogue something like this occurred upon the writer's place. "Here is a new plow which is to be thoroughly tested, and I wish you to use it in the fall plowing."—"Guess I don't need to try *that* plow."—"Why not?"—"Because I know all about it already. Now you've got a plow that there is no mistake about. It's *there* every time—why where I came from, you could'nt give away any other plow."—The implement in question, was the "Syracuse Chilled Plow." The "where I came from," is Dutchess Co., N. Y., and upon reading the numerous certificates published by the makers, we found that a large share of them, and those of the most positive character, were from citizens of that county. The Syracuse Chilled Plow is one of those implements, that tell their story at sight. Just as a sailor knows from the "lines," and the "rig" of a vessel how it must sail, so one who is a judge of such matters, knows at sight, that this plow can't help doing good work. The "cut of its jib," is altogether in its favor. But the "form and manner," are not the only essentials in a working implement, and this is especially the case with a plow. We must have here, matter, as well as manner, and in this respect, the testimony in favor of the "Syracuse Chilled," is as decided as to its character, as it is abundant as to numbers. Among the recent improvements in the arts, none is more important, than that which allows iron to be hardened in such a manner, that for many purposes, it is equal in all respects to steel. The makers of the Syracuse Chilled Plow, claim to have a superior process for producing their wares, and the various prizes awarded at fairs, and the testimony of those who have used them, go to show that their claims are well founded. The plow here figured, is furnished with a coulter; an engraving of the plow, with a jointer has already appeared in our advertising columns. The makers are very positive in recommending the jointer, and regard it as a mistake if a farmer prefers a plow without one, as they claim that a jointer will work wherever a coulter will, and be much more effective. The full "rig" for one of these plows, comprises: two Plow Points; two Jointer Points; one Clevis; one Wheel; one Wrench: one Jointer, and one Band. The company allow their agents to make very liberal terms with farmers, for a trial of their plows, before purchasing. The first plow of this kind,

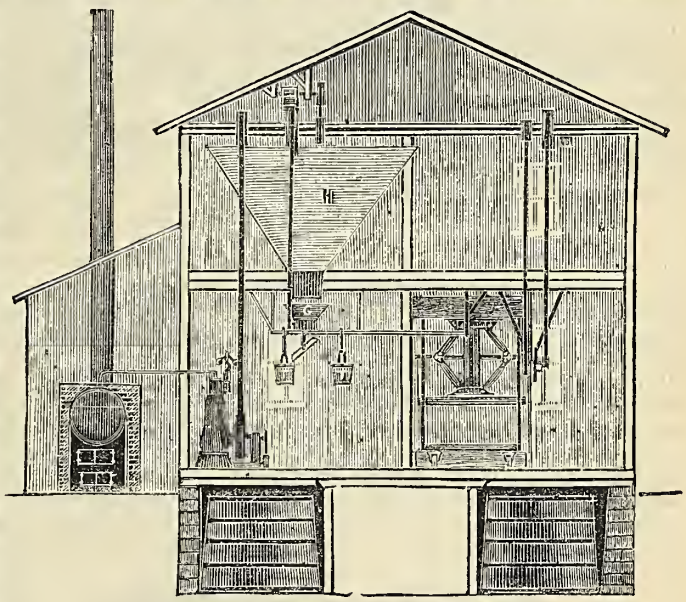


THE SYRACUSE CHILLED PLOW.

was made Aug. 2nd, 1876, and it was estimated, that there were in 1879, 40,000 of the Syracuse Chilled Plows at work in all parts of the country.

## A Modern Cider-House.

The traveller through some of the older States, who sees the neglected orchards, and the cider-mills and cumbrous presses going to decay, might infer that cider was no longer made in this country. On the other hand, were the same traveller to come across one of the catalogues of Boomer & Boschert, he would conclude from the fullness and completeness of this, that cider-making was an important industry in this country. Both conclusions would be right. In some of the older States, orchards, from the attacks of insects and other causes, joined to the lessened demand for cider, have been allowed to go to decay, and have not been replaced by new plantations. In other localities it is found that properly managed orchards pay, if not by marketing the fruit, then by converting the fruit into cider, and ultimately, as paying better, into vinegar. Intelligent orchardists are ready to conform their operations to the season and the markets. If it will pay better to do so, they barrel their apples and send them to market. If this does not promise paying returns, they are sure that if converted into cider or vinegar, their fruit will yield a profit, and enterprising fruit growers are ready for either. The large orchards of the fruit districts have their cider and vinegar-houses, provided with the needed machinery for working up the fruit whenever that is the best disposition to make of it. The old cider-press, with its cheeses laid up with wet straw, and its big wooden screw, the creaking of which could be heard for a long distance on a clear morning in autumn, has given way to presses which, while they take up much less room and make vastly less noise, dispose of the apples with remarkable rapidity. In July, 1877, we described a press which we saw at the Centennial Exhibition the year before. This press, which, by a combination of the screw and toggle joint, possessed remarkable power, was one of the Power Cider Presses made by Boomer & Boschert. While an efficient press is a most important part of the outfit of a cider-house, there are many accessories needed for its most efficient working. That cider-making is not one of the "lost arts," is seen by the catalogue of the firm named, where they not only offer to supply the apple grater and press, but every accessory needed for their rapid working. Indeed, they give plans for erecting cider-houses with all needed adjuncts. We give here the sectional view across the end of one of their mills, intended to produce 100 barrels per day, the other engravings being inconveniently large for our columns. The apples brought to the mill, are delivered in bins placed at some distance from the building. These bins are of such size that each two inches in depth holds one bushel of fruit, and allow of ready measurement of the owner's apples or those sent by a neighbor. The apples are conveyed from the bins, by means of an elevator upon the endless-chain principle, to the hopper at the upper part of the building, shown in the engraving at *H*. An annex to the building, seen at the left hand of the engraving, contains the boiler which supplies steam to an engine upon the main floor, which furnish the motive-power of the house. Directly below the hopper is the apple grater, which we do not give, as it has accompanied the advertisements of the firm, and may be seen by referring to the proper pages. Suffice it to say that this grater is suited to rapid work and is ingeniously contrived to prevent damage from the presence of stones or other foreign matters among the apples. Below the grater is an iron track, upon which buckets run to receive the pulp, carry it to the press, and return for another load. Some excellent contrivances are furnished for laying up the cheese, press-cloths being used. When the cheese is built up, it is run under the press, the end of which is seen at the right hand of the engraving. Here the same power is made to work the press, and the juice, as it runs out, passes into large vats in the base of the building, to be raised into barrels by means of a pump for the purpose, also worked by steam. The catalogue referred to gives every possible accessory, down to a hydrometer to test the strength of the juice, and many minor details which we have not space to enumerate. Of course the juice, when once pressed from the apples, may be disposed of as cider, or converted into vinegar. Messrs. Boomer & Boschert afford every facility for expressing the juice in the most effective manner; with what shall be done with it afterwards, they do not concern themselves.



SECTIONAL VIEW OF CIDER-HOUSE.

## Lining Boxes with Babbitt Metal.

J. C. Green, Morris Co., N. J., sends the following practical hints. He writes: "I have noticed, with interest, the directions, in the June and July numbers, for re-filling machinery boxes with Babbitt Metal. These are very timely, as I find much ignorance among farmers on this and kindred subjects, and many farm machines come to our shop for repairs when they only want "cleaning up" and new lining in one or two boxes, which the farmer might just as well do himself if he only thought so. As this comes directly in my line of business, permit me to supplement your directions with some additional hints and suggestions. If the two half boxes are filled separately, as you suggest (p. 262),

it will be found difficult to adjust the shaft in each so that they will fit in all respects when they are put together. We think a better plan is, to pour the metal into the lower half-box while it is bolted to the frame where it is to be used, as this is the easi-

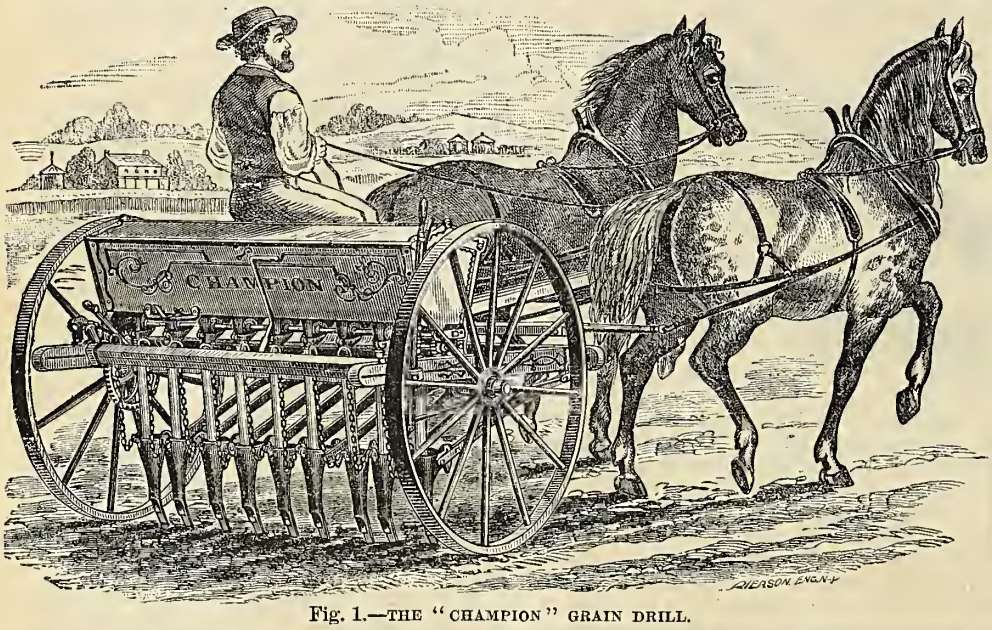



Fig. 1.—THE "CHAMPION" GRAIN DRILL.

est way to get it exactly "in line" with the other bearing or bearings on the same shaft. After the lower half of one or more boxes is filled, remove the shaft and trim off the upper surface of the new metal; then replace the shaft, and put on the upper half-box, with a thin strip of pasteboard or wood on each side of the shaft between the two half-boxes, and screw the upper half down firm upon these strips. Then, after stopping the ends, it may be filled through the oil-hole (to be afterward punched or bored out), or through other holes made for the purpose, or it may be poured at the end of the box on top of the shaft, by making a little tunnel-shaped place of putty to guide the metal to its place. Indeed, we seldom fill boxes without using putty or clay to stop small openings where the metal might leak out. Don't forget the wooden plug in the oil-holes if they are not used to pour through. In place of the strips of pasteboard or wood, commonly used between the two parts of the box, I prefer to put in several layers of thick paper, and then when the bearing wears a little loose, one or more layers of paper may be taken out, and the upper half screwed down, making it as snug as new.

"Very good Babbitt Metal is made by melting together 9 or 10 parts, by weight, of Lead with one part of Antimony. Lead is cheaper than tin, and many farmers have scraps of old lead lying about that might thus be utilized. Persons living near a printing office can often get worn-out type for 10 or 12 cents per lb., which is most excellent Babbitt Metal. I may add what seems not generally known, that wooden boxes may be lined in this way, even easier than iron boxes, and thus farmers may often replace broken iron boxes with wooden ones, or build some kinds of machinery themselves, and make boxes in this manner as good as the best.

"If, in any case, the space for the metal is quite thin, it is a good plan to form, with putty, a tunnel-shaped place where the melted metal is to enter, so that it can be poured very rapidly. If a proper ladle is not at hand, use an old frying-pan, though it will not hurt a new one. If a stove or furnace is not convenient, lay three bricks or stones on the ground a few inches apart, and set the ladle on them and build a fire below, with dry chips, etc."

## About Grain Drills.

Improvements come about slowly, but the regular planting of wheat by means of a drill possesses so many advantages over broadcast sowing, that farmers adopt it at once, wherever the land is in suitable condition. The writer's experience in a grain country has been in one originally heavily timbered, where the old methods was, to sow wheat among the stumps until time and decay allowed of the easy removal of these obstacles. Farmers in such a country are on the lookout for economical methods, as they have to compete in their grain growing with their brethren on the easily worked prairie lands. So soon as it was shown that the use of a Drill made an important saving of seed, the fields were cleared and put into condition to allow of its use much earlier than formerly, and wherever practicable the Stump Puller, anticipated the natural process of clearing the stumps. But it is not merely in the saving of seed that the Drill shows its value; the even sowing at the desired depth, and proper covering, are strong points in its favor. Recently our farmers have learned that cultivating—a very indefinite term for keeping clear of weeds—will pay in the wheat field, and there is now nothing of greater promise to our grain-growers than this one of stirring the soil between the rows of wheat and killing the weeds that retard its growth. Of course cultivating is only possible where the grain is in regular rows, and regular rows are only possible when the grain is sown by a Drill—an interesting illustration of the inter-dependence of inventions. Had there been no grain Drill there would have been no Wheat Hoe, and the invention of the Wheat Hoe, or cultivator, has on the other hand greatly enhanced the value of the Drill. The grain Drill is merely a seed-sower upon a large scale. A box contains the seed, which is delivered by tubes—usually eight—at the proper distance apart for the drills. The difference in the various styles consists in the arrangements for opening the soil, for covering the drills, and for the regular supply of the seed. Modern drills have an attachment for sowing concentrated fertilizers with the grain, and some are so constructed that they may be converted into Corn-Planters, and may be adapted to sow grass seed. We give here engravings of two of the popular kinds of Drill now in use. Figure 1 shows the "Champion Grain Drill," made at Owego, N. Y., for which the makers find an increasing demand. They claim for this machine that its feeders are so constructed as to deliver an exact amount of grain, that needed changes can be made without loss of time, and that the arrangement for lifting the hoes out of the ground or stopping the feeders, are worked with the greatest ease. This Drill has an arrangement for sowing grass seed; it has also a corn-planting attachment, which deposits the corn in two rows, 42 inches apart, with the kernels at distances of 6, 12, or 18 inches, as may be desired. The "Champion Grain Drill" was one of the implements that received a medal at the great trial of drills made during the Centennial Exhibition.

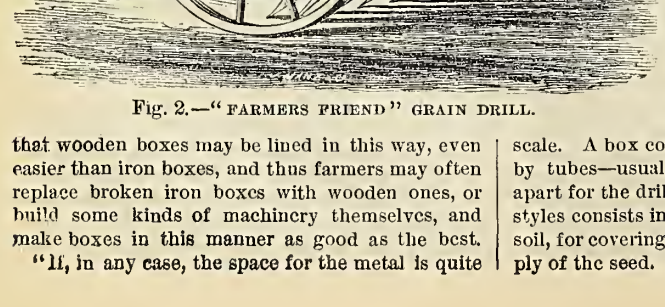


Fig. 2.—"FARMERS FRIEND" GRAIN DRILL.

Another prize Drill at the Centennial was the "Farmers Friend," made at Dayton, O., shown in figure 2. An engraving of its exterior is an unsatisfactory matter of illustrating a grain drill, as the important portion, the one which a judge of machinery would examine first—*i. e.*, the feeding portion—is hidden from sight. The makers of this Drill also claim great perfection for its feeding device, as well as for its "Cone Gearing," by which the distribution of the seed is regulated. As will be seen by the engraving of this device in figure 3, the several wheels or gears, regulating the movement, are bolted to a cone. A cog-wheel on the main shaft is moved by a lever to engage with every wheel of the cone which will cause the delivery of the desired quantity of seed. As with other first-class drills, this is made to sow fertilizers, and has an attachment for seeding grass. Not content with the award at the Centennial, the makers competed at the Paris Exposition of 1878, at which this Drill received medals, as it did in the same year from the Agricultural Society of Scotland. Knowing that the "Farmers Friend" was in use by a farmer of our acquaintance, we asked his opinion of it. The reply, not a very long one—"I consider it a first-class machine in all respects"—is, to those who know the writer, quite as expressive and says as much as would be conveyed in a long letter. Indeed, those few words from an intelligent farmer are to some persons a more valuable testimonial than many medals.

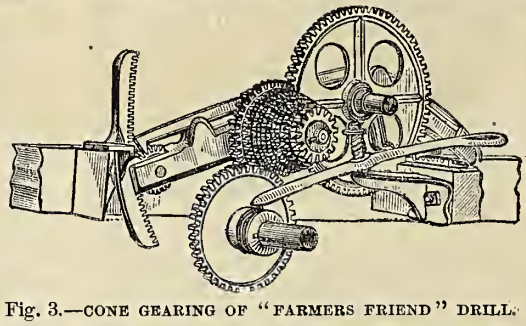
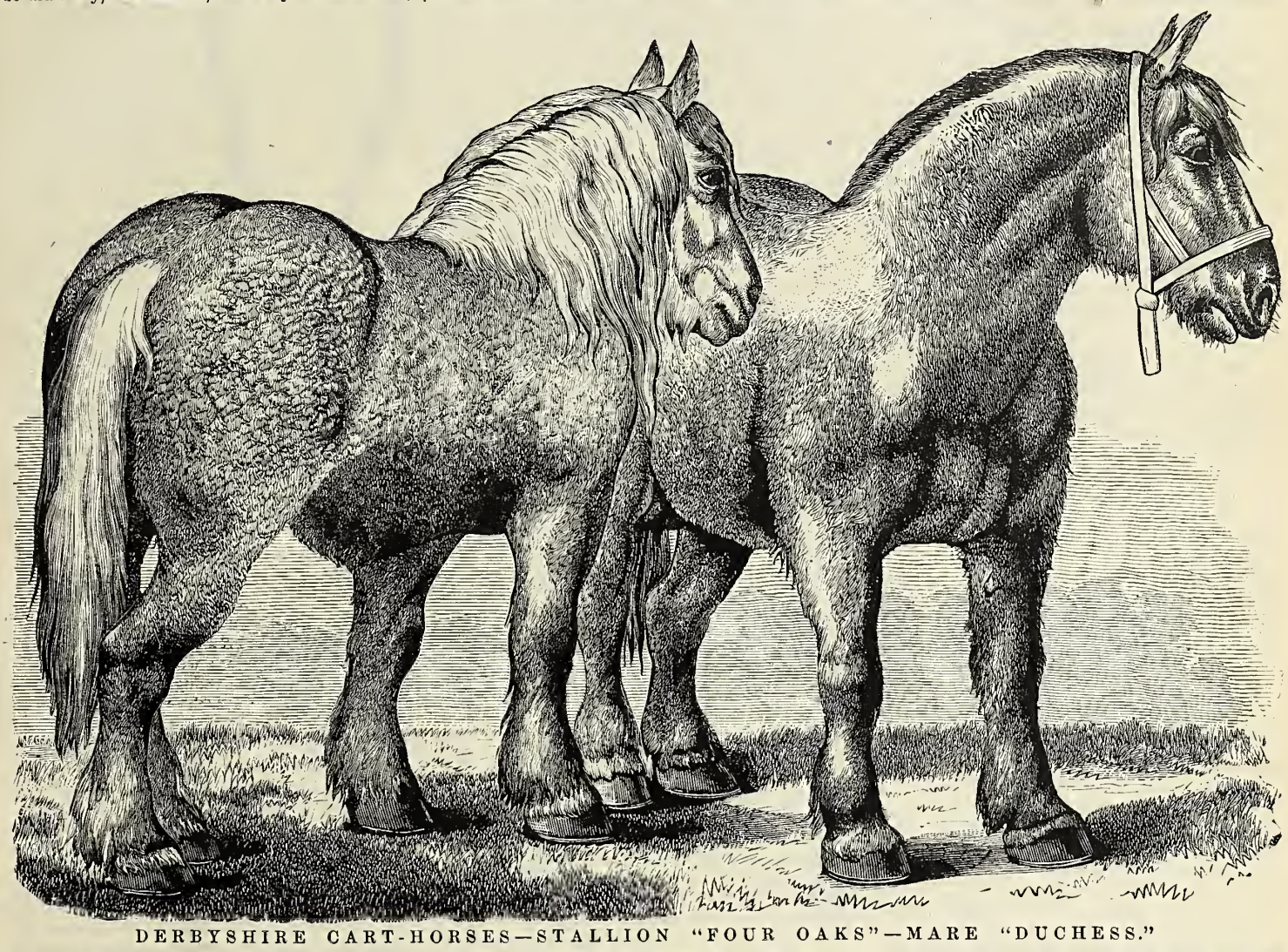


Fig. 3.—CONE GEARING OF "FARMERS FRIEND" DRILL.

**Fall Plowing.**—The better the preparation of the ground the better the crop. The high average yield of the English farms is no doubt largely due to the thorough preparation of the ground before seeding. Our climate is superior to that of England for wheat growing; yet a yield of 64 bushels per acre is not at all infrequent among good farmers there, while here 40 bushels per acre is an unusual yield. Two plowings, several harrowings and in many cases rolling or crushing; and the excellent preparation of the soil by a previous root crop must have a much better effect upon the soil, than one plowing, very poorly done because of the hardness and dryness of our soil in midsummer, and very imperfect harrowing. It might be well for us to lay out more labor on our wheat crop, and so prepare the ground better, and raise our average from 12 to at least 20 bushels per acre. The difference in the amount of wheat at harvest would pay for a good deal of extra work in plowing, etc., and yet leave a profit; besides, the soil would not forget the generous treatment in one year nor two.

## English Cart Horses.

The cart is an old and firmly established farm vehicle in England, and also in other European countries. More work is done with it than with the wagon, upon the road, as well as in the field; to draw hay, and manure, and carry in the harvest, and covered with limestone, which in many places rises into considerable hills of the most picturesque form. It contains the magnificent Chatsworth, the seat of the Duke of Devonshire; the ruined castle of Castleton, made famous by Sir Walter Scott in his "Peveril of the Peak," and the great cavern which runs for miles under the mountains. Be-



DERBYSHIRE CART-HORSES—STALLION "FOUR OAKS"—MARE "DUCHESS."

the farm cart is in constant requisition. This general use of the cart has given rise to, and kept in use, a breed of horses adapted for the work. The Cart-horse of England; the Flemish draft horse and the Norman horse, all serve for this special use in their different countries. In England, cart horses are in such general demand, and local customs and habits are so distinctly marked, that we can not characterize any one breed as *the* cart-horse, there being many kinds, all of which, while they possess a generic likeness, have each their peculiar and specific differences. Thus, there is the Clydesdale-horse; the Norfolk-horse, the "Shire," or Yorkshire-horse; the Derbyshire-horse and others, all of which are specially "cart" horses, and to distinguish which of these, or how many of them can be considered as "an English cart-horse," puzzles even the adepts in England themselves. Just at present, as every valuable race of domestic animals is considered worthy of a stud book or Herd record, so the English Cart-horse is honored in this way, and an "English Cart-horse Society," with a proposed stud book, has been organized. This is, however, the beginning of a serious trouble, for no one seems to know what should be admitted or what rejected, and the result may be, that by and by, each different race of cart-horse, localized by close breeding and confinement to a narrowly bounded district, may have its society of breeders, and its stud book. In this case it is probable that the race, of which we here give an illustration, which is the Derbyshire Cart-horse, may become the one which shall receive the greatest attention. Derbyshire is a noted county in England; being rough and rugged as to surface, fertile as to soil, sides, it contains the first cheese factory ever established in England, and is an excellent dairy country. The roads are hilly and rough, and are excellently matched by the rough and rugged cart-horses which traverse them. Our illustration, for which we are indebted to the London "Agricultural Gazette," was taken originally from a catalogue of 29 Derbyshire cart-horses, which were sold recently at Alfreton, Derbyshire, for Mr. John Nix, of Outseats stud farm. Mr. Nix has bred this class of horses for more than 50 years, adhering to it with steadiness and perseverance. His stock, he states in his description, to be "the old-fashioned sort, possessing weight and power, with great bone and abundance of hair, strong firm feet, and the best action." The stallion, "Four Oaks," is a 2-year-old colt, 17 hands high, and a rapid walker; the mare, "Duchess," is 4 years old, very wide across the loin, short in the leg, gray in color, and, as may be seen, has great substance. She is an excellent worker, and has taken the first prize as a yearling, and the second prize as a 2-year-old in the two exhibitions in which she has been shown.

The cart-horse, proper, has no place in our agriculture, yet it may well be questioned if we do not miss something by neglecting both the horse suitable to the vehicle and the cart as well. The narrow tired wagon in general use, with its double team, carries no greater load than an English farm cart with its one broad-footed, big-boned, wide-bodied heavy cart-horse, able to move a ton in a broad-wheeled cart over a plowed field. The usefulness of the carts; the ease with which they can be moved, turned, tipped, and unloaded, and their convenience in many other respects, have much to recommend them; and the few enterprising American farmers on whose farms they have been in use for years, could not be induced to discard them. It is true that very heavy horses are needed to move them, but a pair of such horses will be found as active in a wagon as a lighter team, and able to move twice as much. It is safe to estimate that two heavy horses and carts, with three men, will do as much work, or more, than can be done by four light horses, with two wagons and three men.

## Harvesting Buckwheat.

Buckwheat being easily grown, succeeding on poorly prepared soil, giving a quick return, and generally yielding a remunerative harvest, is a favorite crop with inexperienced farmers. Still it requires peculiar treatment in the harvesting, and those who are not acquainted with it are apt to make mistakes. It requires cutting before it is fully matured; and its habit of throwing out blossoms at the top until killed by frost, is apt to mislead. When frost is expected, the crop should be cut, and many immature grains will become perfect in the few days during which it is drying in the field. Whenever the lower branches are well loaded with ripe grains, it may be cut; this should be done with the cradle, and while the stalks are damp with dew or moist after a shower. The grains are loosely attached to their stalks, and are easily shaken off in the cutting or raking, unless these are carefully done. After the swaths have lain for a few days for the grains to ripen, the buckwheat is raked up into bunches and these are set up in gavels or loose stooks, without being bound; the tops being gathered together as much as possible. In this condition the crop remains until it is thrashed. As it heats very rapidly it should never be put into a stack, nor mowed away in a barn, as has been sometimes done by inexperienced farmers. When the buckwheat is sufficiently cured and dry, and the unripe grains have matured, it may be thrashed

by treading out with horses, with the flail, or the thrashing machine. It is frequently thrashed in the field, by making a bed of cleanly swept ground and beating the swept surface as hard as possible with a rammer made of plank. The gavels are placed in a circle, upon the bed thus prepared, the heads towards the center, and to a depth of two feet. A pair of horses are ridden around over the bed until the straw is freed from the grain; when it is removed and a new bed is laid down. When the whole has been thus trampled out, the straw is raked off, the fanning mill is brought out, and the grain cleaned up at once. When the grain has been cleaned, it cannot be safely put away until it has been well dried, or it will heat and spoil. It should be spread upon a dry floor in an airy shed or barn, and turned over repeatedly until it is dry, and then it may be stored in bins or in the granary. A dry, breezy day should be chosen for the thrashing. If the thrashing machine is used, the concave should be removed, and a piece of smooth plank put in its place, else much of the grain will be broken and lost. If the straw is at all damp, it should be fed into the machine slowly, otherwise it is apt to wind around the cylinder and give trouble. The grain should be cleaned from the chaff soon after thrashing, as there is much danger of heating and moulding, by which the quality and yield of the flour will be greatly lessened. The first buckwheat flour in the market brings the best price, and it is not unusual for the price to fall one half in a few days, after the first demand for new flour has been met. It is a crop to dispose of as soon as possible, at least as regards that portion intended for sale. When taken to the mill for grinding, a dry windy day should be chosen, as the best quality of flour can be made only in such weather; indeed, few millers will grind this grain, unless obliged to do so, in any other weather than that described.

## Among the Farmers.—No. 43.

BY ONE OF THEM.

### Injury to Cows by allowing Calves to Suck.

There is no truer thing in my experience, and I believe in that of hundreds of others, than that allowing a calf to suck is an injury to the cow. This injury is more or less permanent according to how long it is continued, and doubtless depends largely upon the vigor and digestive powers of the calf and the quantity of milk given by the dam. The udder of a young cow, thus treated in the full flush of her yield, loses capacity to hold a large "mess" of milk, if it ever had it, and older cows becoming accustomed to the steady half-hourly drafts of the calf, fall off in their yield rapidly after the calf is sent to the market. Calves, it is true, usually fatten better on the cow than as fed, in general practice in this country, but our practice is certainly wrong, and I am by no means sure a calf may not be just as well fattened off, as "on the cow." In fact I have once or twice fattened a calf so well "on the pail," that the butcher complimented the veal, saying that any one could see that that was no skim-milk calf, whereas, after the first three days of its life, it had had no milk which was not skimmed. The loss of cream was made up to the calf by as much scalded linseed-meal cake as was judged good for it, and it always had a wisp of sweet hay, or bite of grass in its season, to nibble upon. All calves are not alike in this respect, but where milk is the principal thing, veal is secondary, and so we are willing to sacrifice something of the excellence of the veal to the good of the dam.

When a deep-milking cow has two calves put upon her, their thrift will often indicate an enormous milk secretion. I presume no harm comes from such practice, commenced after a cow is four or five years old, but thousands of good heifers are spoiled every year because, not being pleasant to milk, their calves are left to run with them. Their udders never becoming distended, they lack capacity to carry their milk from one milking to another, and when their calves are taken away, not only do the teats leak, but the discomfort caused by the unusual distention of the udder results in a decrease of yield. Whereas, had the distention occurred when the whole system was in the plastic condition in which it is just after calving, when the udder is naturally swollen and more or less painful, it would have become for life adapted to the circumstances and would be of increased capacity.

A very sensible article is going the rounds of the papers, showing that it is just because wild cows have their calves running with them that they never give much milk. It seems folly for farmers who want milk to follow the course, which they can see in nature produces just such results as they do not want. See how it is with mares. I was surprised to find that a good mare gave 14 quarts of milk in a day, and yet most mares will sustain in good order a larger animal than a big calf, and one which grows much faster. This fourteen quarts of milk was given when the colt was weaned. What, is it fair to assume, was given by the mare during the period soon after foaling, the time when cows yield most? In cows, of course the decrease of milk is not observed until the system of milking twice a day is adopted. So long as the calf takes its rations as often as it can digest what it takes, the flow keeps up—but it renders the cow more or less incapable of carrying the milk produced, and of producing more than she can comfortably carry.

### Feeding Calves from the Pail.

The desirableness, therefore, of promptly removing the calf from the cow is apparent. It is in fact demanded by every motive of economy. A calf is easily taught to drink, and will empty a pail of milk in a very short time. The usual practice is to leave the calf with the cow three days, and then remove it, because the milk may then be used. It is better never to let the calf suck, unless the condition of the udder be such that the butting and, so to speak, manipulation, of a hungry calf, are needed to reduce swellings and cakey masses within the udder.

The system of allowing calves to drink from the pail is an evil one in every respect, except merely that it is better for the cow that they should drink rather than suck her. The practice of feeding calves, by means of what is termed a "calf feeder," is a growing one in England. This is a pail arranged with a close fitting top and a rubber teat upon the top of it, which is connected with a tube having a simple valve at the lower end, which lies or is fastened in the bottom of the pail. I put this apparatus (shown in section in figure 1) in use this year, getting up one for a neighbor who was unfamiliar with its construction, and the results have been most satisfactory.

The objection to a calf drinking from a pail is, that by this means no saliva of any account is mingled with the milk. The effect of this fluid in aiding digestion is well known, and it is a fact, also well known by every farmer, that calves fatten much more rapidly, and better, as a rule, upon the cow than upon the pail, even if they get a pailful of new milk fresh and warm from their dams morning and night. A good many calves become "pot-bellied" from drinking rapidly, and I have no doubt are thus permanently dwarfed. I am by no means certain that skimmed milk taken slowly by the operation of sucking, will not prove of more real benefit to a calf than whole milk drank rapidly. In the home-made calf-feeder above alluded to, the contraction of the larger tube is effected by placing, for a short distance, a small one inside of it. This secures slowness of flow, and enforces sucking and mouthing necessary to a flow of saliva.

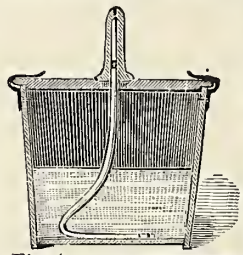


Fig. 1.—A CALF-FEEDER.

### Permanent Label and Halter for Cows.

A few weeks ago Mr. J. P. Haines, of Cranmoor, N. J., showed me a necklace for cows which he finds so convenient that he has adopted it for his entire herd, and had his stables built with reference to it. To me the plan has much to recommend it. Strong galvanized-iron twisted-linked chain is cut into suitable lengths to go easily around the necks of the cows—in fact of all cattle which are to remain permanently in the herd, the chains being of different lengths to suit. These are bound with leather, hand-sewed, the leather being tightly drawn around the links. Brass plates, like heavy trunk checks, (of which I send you a sketch), are provided also—and the Scandinavian locks now so common, are found to be just the things to carry the label and lock the ends of the chain strongly together. This neck gear, (shown in figure 2,) when once put upon a yearling, need never be changed, unless she grows beyond all expectation, and then it is easily changed. The cattle are fastened in the stable by means of the common frog and loose ring fastening, running upon an iron rod. The leather is not worn by the fastening, which always rests upon the bare links and padlock. When iron rods are used there is a good deal of noise in the stable. For my own part I should decidedly prefer wooden upright rods or posts upon which the stable fastening should run. The label has stamped upon it: "Cranmoor Herd, No. —, J. P. Haines;" it is, as seen in the engraving, of oval form, and measures 2½ by 1½ inches.

Fig. 2.—A HALTER FOR COWS.

### Grades or Cross-bred Fowls.

I have not been able of late to give much attention to fowls, in fact never have found very much profit in raising pure-bred ones. At one time, however, our Light Brahmas were very good, and we could sell all that we thought were fit to go as breeders at $3 to $5 each—which certainly was profitable. The fancy breeds need much attention or they run down. Several yards must be kept or one finds suddenly that some cross has "knicked" badly, and he has a lot of unsalable fowls, which are no better than dunghills for use or for market, if indeed as good. Of late years we have always had full-blooded cocks, and also a few pure hens of their breed, but sometimes none, so that our chicks have all been grades. We find that for hardy chicks, good motherly hens, and real satisfaction in fowl-keeping—pleasure in seeing the young ones grow—and the gratification of having always an abundance of fresh eggs, there is no system like it. We have used in succession, Light Brahma cocks, White Leghorns, Dorkings, and Plymouth Rocks. These last we have had for two years, and have them booked for the third. Chicks never seemed hardier—never grew more rapidly. We have never had steadier layers, better setters, more gentle, quiet, careful mothers, and this without noise, without fighting, without flying over fences, or any other annoyance. I do not think that they lay as many eggs as the Leghorns, but they surpass the Dorkings greatly as layers, equal the Brahmas as winter layers, are yellow-fleshed, make large, quick growing, juicy broilers and roasting birds. The grade Plymouths, in the same brood with pure Asiatics, surpass them in growth and early maturity, and they weigh more at any time before they are 9 or 10 months, or perhaps a year old. After that, the Asiatic breeds, if they do well, will grow larger because they grow longer. As to ease of keeping, I can not say exactly how much or little they will eat, but when not laying or sitting, they are always in condition for the table. I refer to grade and cross-breds with particularly well marked Plymouth characteristics. If a cross-bred takes after the other breed, whatever it may be, as some of them will, they are counted as mongrels, and not as Plymouth Rock grades. The progeny of the grades show the P. R. cross very strongly.

**When to Cut Fence Posts.**—"Experience teaches." It is difficult to prove by argument why fence posts or timber cut for other purposes, in August, will be more durable than if cut at any other season. But it is well known to many who

are experts in the timber business that "powder post" or the destruction by larvæ of wood-eating beetles, never occurs in hickory or oak cut in August; and that pine saw-logs, cut in the summer, will be sound after being left several years in the woods, when those cut in the winter will often be seriously rotted. Many farmers aver, as their experience, that fence posts cut in August will outlast by many years, others, that are cut in the winter or in the spring. While we may not be able to explain the reason from any difference in the character of the sap, or the condition of the wood itself at the two seasons, it may be well to accept the fact as shown by experience, and get out the fence posts, if possible, in the month of August.

## The Wheat Rust.

By the time this number of the *American Agriculturist* reaches its readers, many will have had their attention called to what is generally known as "Wheat Rust." As the skin and clothing of the harvester are covered with the fine, bright, orange-colored powder which he brushes from the leaves and stems of the wheat plant, he will naturally ask: "What *is* this rust?" "What causes it?" etc. But to the farmer who sees his hard earned grain almost ready for the harvest, shrink to worthlessness at the withering touch of this destroyer, there will occur the more important question: "How to prevent it?" At the outset, we may say that the Wheat Rust is a minute fungus known to botanists as *Puccinia graminis*. Those who would learn something of the manner of growth of these plants are referred to an article in the July number, entitled: "Fungus—Fungi—What are Fungi?" With the statement that the Rust is due to a minute parasitic vegetable, let us endeavor, with the aid of the microscope, to more fully understand its real nature and its habits of life.

1.—WHEAT STEM.

To begin at the proper place in the life history of this fungus, we must observe that grain stubble, in autumn, is often covered with small, black, or dark-brown streaks, which might be easily mistaken for weather stains. If the whole plant had remained upon the ground, the leaves and stalks would have had these same dark patches and lines upon them as are shown in figure 1, where a small portion of an affected stem, and the base of a leaf are represented. A small part of the leaf is shown, somewhat magnified, in figure 2, and the dark spots are seen to be due to a vast multitude of dark colored spores, which have developed from the interior and ruptured the epidermis, or skin, of the leaf. If, with a sharp knife, or better, the keen razor, we used in this case, we make a thin cross-section of the leaf through one of these dark spots,

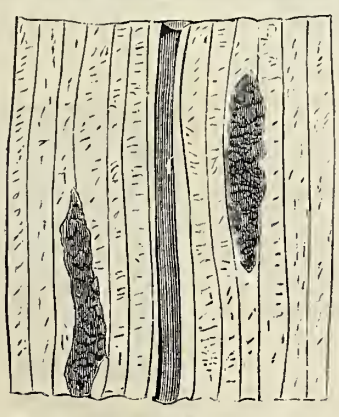


Fig. 2.—PORTION OF WHEAT LEAF.

we have what is shown in figure 3. The lower portion of the engraving, *c*, represents the interior of the leaf; *a*, *a*, the epidermis which has been ruptured and pressed back by the spores, *b*, *b*, as they formed

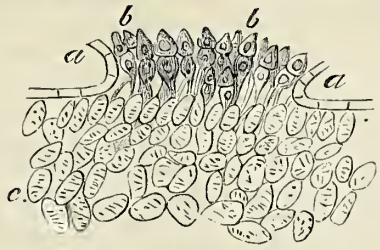



Fig. 3.—CROSS-SECTION OF SPOT.

and increased in size. These spores are always double, that is, there are two, end to end, at the extremity of each slender thread. Figure 4, *a*, shows one of these double spores separated from its neighbors and highly magnified. The germination of these spores is shown in *b*, which consists of the bursting of the thick outer coat of the spore, and the contents elongating into an irregular filament, *c*, upon which in a few hours a number of very minute ovate bodies are formed, *d*, *d*, which soon become detached. We have, in fact, had five or more small spores formed out of the old one; this takes place in the spring whenever the *winter spore*, as we will call the one with which we started, is provided with heat and moisture. From the winter spore we have the small spores, (*d*, *d*), formed directly, one of which is much magnified at *f*. These spores, (*d*, *d*), find their way to the leaves of the Barberry, and if there are no Barberry bushes, probably to some other plant, where they germinate, sending their filament into the tissue of the leaf, and in the course of a few days a yellow spot is formed on the Barberry leaf, figure 5, *a*, and shortly after a number of cups are formed from the bursting open of the epidermis of the leaf. As these cups are close together they are often spoken of as "Cluster Cups," which is shown somewhat magnified at *b*, and a single one more highly at *c*, with a side view of the same at *d*. The lower portion of figure 5 represents a still more highly mag-

Fig. 4.—SPORE GERMINATING.

nified view of a cross section through one of these cups, showing the ruptured epidermis of the leaf at *e* and *f*, between which the cup, *h*, extends down into the interior of the leaf, *g*. The cup is packed with spores which are formed in rows and break away from their attachment, *h*, and are carried away by the wind. Owing to pressure, they are more or less angular in outline, as seen at *i*, which shows one of these spores enlarged. These spores soon find their way to the growing wheat, upon the leaves and stems of which they germinate and send their absorbing threads through the plant tissue.

After a short time these threads congregate at certain places near the surface of the wheat leaf, and, in enlarging, rapture the epidermis, *a*, *a*, rapidly ripen the myriads of yellow spores which gives the rusty color to the parts affected, and the common name to the fungus. This stage of the fungus is known to botanists as *Uredo*. Figure 6 shows a cross section through one of these *Uredo* spots, with the rough orange-colored spores, *b*, crowded together, each on a slender stalk, which attaches it to the filaments in the tissue of the leaf, *c*. From these same filaments, and in these same spots, the brown spores appear later in the season and close the cycle of changes of this polymorphic fungus.

## The Clover Crop.

Many farmers look to a crop of clover, to restore the fertility of their land, and in so doing, they look in the right direction. Why is it that this plant is so potent in bringing up exhausted soils, as it cannot of itself create any plant food? In the first place, we have in the clover a plant which exposes a large expanse of leaf surface to the air and sunshine, and is able to transpire a large amount of moisture. An average acre of clover will send off from its leaves, over 8 tons of water in 24 hours, in the state of vapor, while under the same circumstances, an acre

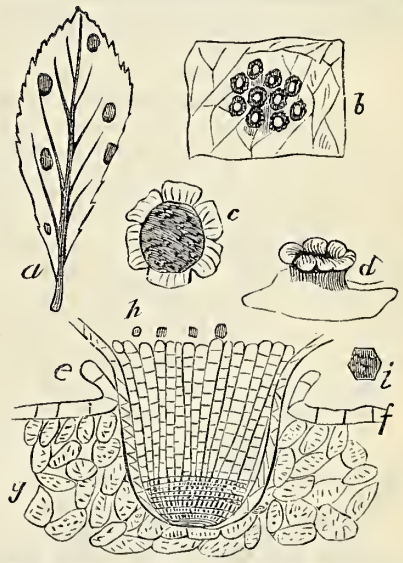



Fig. 5.—BARBERRY LEAF AND CLUSTER CUPS.

of wheat will transpire only one-fourth as much. Such being the case, a much weaker solution of plant food will suffice for the clover plant. It is on this account that clover is known as a close feeder, because is can thrive on a soil that is poor in plant food. But this is only one factor in the success of clover on a soil where a cereal would fail. The clover plant is a deep feeder, sending its fine roots far down into the soil, and filling all the sub-soil as well as the top-soil with its multitude of absorbing rootlets. If it is a close feeder, it must follow that it must have abundant provision for the absorption of a large amount of the weak solutions of plant food, which it concentrates in the leaves by evaporation. One man may be able to profitably manufacture salt from sea water, while another would starve when engaged in the same industry, owing to inferior facilities for using the weak solution. So with the clover, as contrasted with wheat, or many other crops. Having shown why the clover plant can succeed where others will not do well, let us see why a crop of clover can benefit the land by making it more productive. There are many instances on record, where a heavy crop of clover has been removed, and the following year, a much larger crop of wheat has been obtained, than on like soil where wheat had succeeded wheat. We must also remember that in removing a crop of clover, we take off much more of the essential food elements, than in the case of the wheat. The explanation is

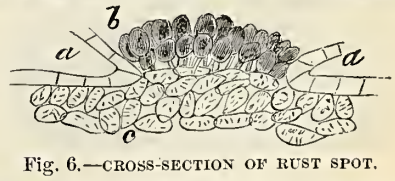



Fig. 6.—CROSS-SECTION OF RUST SPOT.

something like this: The stubble and the part below ground, is to be remembered as making up no small part of a clover plant, and here we have a large quantity of plant food, especially nitrogen, in a concentrated and available form. The clover plant has pumped up and accumulated a quantity of food which the wheat plant cannot of itself reach, but gladly accepts when thus prepared. If the

potash, phosphoric acid, and nitrogen, which is removed in a clover crop, is returned in manure or its equivalent, or if the crop is plowed under, then there is no loss in any sense, but on the other hand an accumulation and concentration of available plant food, especially of the nitrogen, which the clover plant secures from that great store-house of this element—the atmosphere. It is well said that, "clover seed is the best manure that a farmer can use."

## A Smoothing Plank for Seeding to Grass.

In seeding to grass, alone, the harrow ridges are apt to cause the seed to come up in rows, unless the surface is smoothed over before the seed is

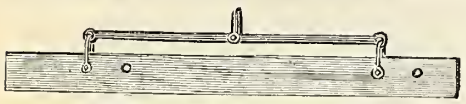


Fig. 1.—SMOOTHING PLANK.

sown. To avoid this, we have found a smoothing plank, drawn over the ground, the best and easiest method. The plank is 12 feet long, 2 inches thick, and 12 inches wide. Holes for clevises are made as shown at figure 1, so that the plank may be drawn squarely or diagonally across the ground. A draft chain may be fastened to the clevises, to which one horse may be hitched. A strip 2 inches wide and thick is bolted under the plank, which helps the smoothing effect. This plank may be made into a corn or root marker by adding runners, which are placed at proper distances on the bottom.

A subscriber sends a description, with sketch, of a smoothing plank which will operate well upon

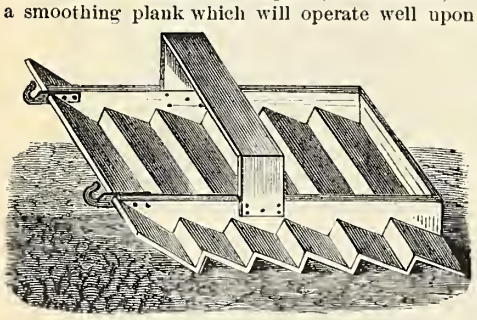
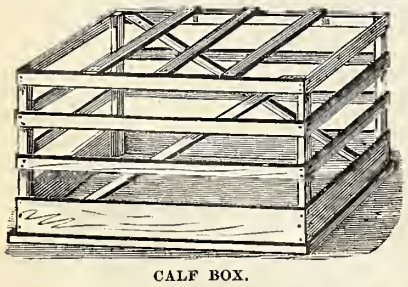


Fig. 2.—SMOOTHING MACHINE.

heavy and rough ground. This is made of a series of planks, six feet long, fastened together and arranged as shown at figure 2. A seat may be provided upon which the driver may ride, his weight adding to the effectiveness of the smoother.

## How to Box and Ship Calves.

Farmers who wish to improve their stock find it more profitable to buy calves, and wait for them to grow, than to purchase mature animals at a much higher price. But there is the difficulty that a three months calf is quite too young to be shipped as freight, without being carefully boxed, consequently there is now a large business done in selling calves, which are boxed, and sent safely for thousands of miles, from the East to the farthest West, and from the United States to many distant countries. Now that the true significance and value



CALF BOX.

of a good pedigree is well understood, one may safely purchase a young animal whose descent from excellent parents is known, with but a small risk of disappointment. It is true that, in rare cases, a young animal may not develop all the good qualities of its parents; but then it may just as probably surpass them, and generally it will, at least, equal them, so that the chances may be taken without much risk of disappointment. In boxing a calf or any other small animal for shipment for long distances, the box should be sufficiently roomy, but not large enough to permit it to turn around or even to attempt it, lest it might become fastened and injury result from its struggles to free itself. For a calf of three or four months, a box 5 feet long, 3 feet high, and 2 feet wide, will be about the right size, and it may be made as follows: Four stout posts, 2 x 2 and 3 feet long, are used for the corners, strips 9 inches wide and 1 inch thick are nailed around these at the bottom; the other strips are 3 inches wide, leaving a space of 6 inches between them. There are four strips and three spaces. Diagonal braces are put in to strengthen the frame, if necessary. The bottom is boarded tightly, and the top is closed by three cross laths securely screwed down. At the front the upper three strips are made into a door fastened with leather or other hinges, and a staple and a hasp, so that it may be opened to water or feed the calf. When live animals are shipped by express, the carriers engage to furnish water, and give whatever feed is sent with them. A bag of cut feed and another of meal, should be sent with each box, with plainly marked directions how to give it. It will also be prudent to send a pail with each box, in which the feed and water may be given to the confined calf.

## Seeding to Grass in Autumn.

It is hardly safe to follow a strict rule in any agricultural practice. Where a farmer owns his land, and can do as he pleases with it, there are times and circumstances in which he may do some things which are unusual. The best cultivation is that which produces from the soil, the greatest possible yield, with the least expense. It may be that in doing this, we set at defiance all the supposed rules of "good husbandry," so called; but in agriculture, as in other affairs, "circumstances alter cases." Thus, it may be desirable to get a field into grass as early as possible, and it is generally supposed that it is necessary to seed down with a foster crop, as wheat or rye in the fall, or barley, and perhaps oats in the spring. But while this is the custom, there is nothing imperative about the rule. Grass and clover may be sown early this month, with every probability of success. Something, of course, will depend upon the weather; for if it is dry for a few weeks after the sowing, the germination may be so late as to seriously risk the loss of the seed. For this reason it is best to sow some sheltering crop with the grass and clover, by which these may be protected during their earliest stages of growth and weakness. Perhaps nothing else answers this purpose so well as white turnips. These grow quickly, and the broad leaves shelter the ground from the heat and keep it moist, thus greatly fostering the young grass. The turnips, besides doing this valuable service, will furnish a large amount of green fodder for late fall or early winter feeding. Three hundred bushels per acre, is not at all an unusual yield of turnips, when grown in this way. It is not desirable to have the roots very large, nor the tops very broad, lest the grass and clover, instead of being protected, may be smothered. The clover will become sufficiently large to resist the frosts, and as soon as the turnips are pulled, which should be done early, the grass and clover thicken up very rapidly, and often cover the ground before it is frozen for the winter. Then a top dressing of fine manure will be of great benefit, and in the spring the growth will be very rapid. When the soil is in good condition, and can be made very fine and mellow by repeated harrowings, it may be safe to sow the seed alone, and trust the chances for a good catch. For this method, the seed should be liberally applied. If Orchard-Grass is sown with Clover, 2½ bushels, (21 lbs.) of the former, and one peck (15 lbs.) of the latter per acre, will be sufficient. If Timothy is sown, a peck (12 lbs.) should be used

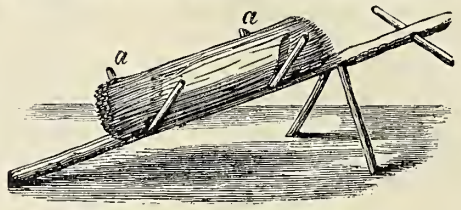



Fig. 2.—A CORN SHOCKING HORSE.

with the same measure of Clover. If the soil is low and moist, a bushel (13 lbs.) of Red-top per acre, will be desirable to take the place of half the above mentioned quantity of Timothy. If Kentucky Blue-Grass is to be sown, a bushel (12 or 13 lbs.) per acre is a proper quantity, mixed with Timothy and Clover. For a pasture, nothing can surpass a mixture of 8 lbs. of Red-top; 8 lbs. of Kentucky Blue-Grass; 13 lbs. of Orchard-Grass; 6 lbs. of Timothy, and 8 lbs. of Red-Clover. This produces an herbage that gives an early and late, as well as a good mid-season growth; the different grasses coming in succession; as one fails it is followed by another.

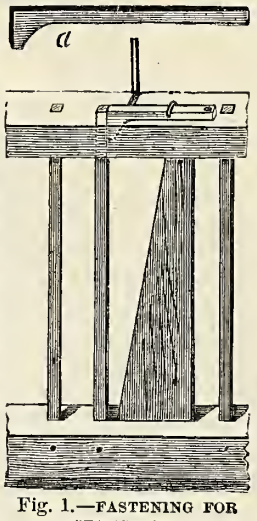



Fig. 1.—FASTENING FOR STANCHION.

## Hints and Helps for Farmers.

FASTENING FOR STANCHIONS.—"C. F. A.," Granville Ferry, N. S., sends a sketch of a wooden spring used by him as a self-acting catch for cow stanchions. The shape of the spring is shown at *a*, fig. 1, and it is affixed in the manner shown below. As the movable stanchion is pushed up, the spring is raised, and when it is in place, the latter drops behind it and holds it closed firmly and safely.

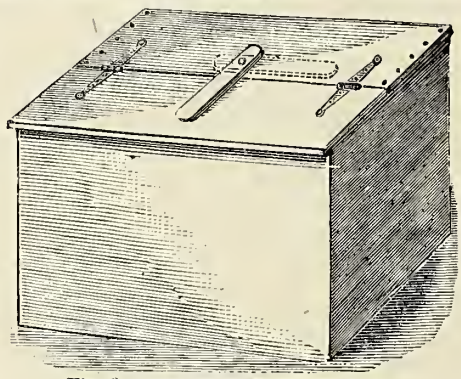


Fig. 3.—FASTENING FOR FEED-BOX.

A CORN SHOCKING HORSE.—"F. A. P.," Dudley, Mass., sends a drawing of a corn shocking horse, provided with a rack for holding a bundle of straw for bands, which is something novel, though the horse itself is not. The horse is used in the ordinary manner, by setting up the corn against the cross-bar at the end, which is movable in a hole bored through the pole. The bar is drawn out when the pole is to be moved for the next hill. The straw lies upon the rack made by the pins, *a*, *a*, figure 2. The legs of this horse are 2½ feet long for short corn, and proportionately longer for taller corn.

A TIMBER DRAIN.—"A Subscriber" sends his method of making a cheap drain of timber. This is made by placing short pieces of stout plank, diagonally, across the ditch, as shown in figure 4. In place of plank, pieces of round timber split in halves, will answer a good purpose, and if the ditch is partly filled with small brush of pine or hemlock, the drain will be durable enough to pay for the labor.

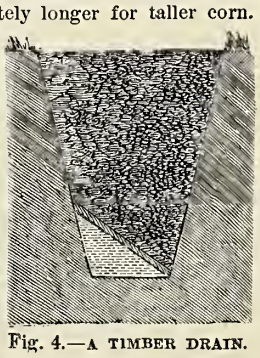


Fig. 4.—A TIMBER DRAIN.

FASTENING FOR FEED-BOX.—"J. T. McL.,"

Beatty, Pa., sends a description of a fastening for a feed-box by which a trespassing animal is prevented from getting access to the meal, as is sometimes done accidentally, even in the best arranged barns or stables. It consists of a bar of wood pivoted across the top of a feed-box (figure 3), which may be turned over the lid when the box is closed and pushed aside when it is to be opened. There are cows and horses which have sufficient sagacity to lift the lid of a feed-box to steal the meal; but this fastening will be beyond the ingenuity of the most sagacious and intelligent of our four-legged thieves.

## Supplying Milk to the Consumer.

The production and selling of milk, while it should be profitable to the farmer, is, as ordinarily conducted, one of the poorest kinds of business in which he can engage. He is not only miserably paid for his product, but he is robbed by dishonest persons, some of whom skim his milk in transit, and by others who water it; thus they not only rob the producer of his property, but "filch from him his good name" and leave him "poor indeed" in both ways. The milk producer consequently lives under a cloud of suspicion, but fortunately, he is, as a general thing, undeserving of it. As a rule, the milk farmer is honest, and sends pure milk to market; the milk may not be remarkably rich, because ordinary cows, fed upon grass, will not give rich milk. It is quite unreasonable to expect, that a farmer who receives the miserable sum of a cent and a fourth per quart for his product from the city dealers, will be, or can be, philanthropic enough to feed costly cotton-seed, or palm-nut meal, or even corn-meal, for the purpose of enriching it and making it rich in cream. The milk farmer knows that while he gets 1¼ cent for a quart of milk, the railroad charges 1½ cent, and that the dealer and peddler, between them, get 5 or 6 cents per quart. This does not seem to him to be a fair division, and yet the farmer is helpless, both against this oppressive division and the exasperating dilution of the milk, which adds still more to the profits of those who distribute it to the consumers. There are some honorable and upright milk dealers in the cities, but there are also those whose nefarious ways are occasionally discovered. But the truth is, that the milk business is rarely satisfactory to either producer or consumer, and the trouble lies somewhere between the two. As there are means of surmounting all difficulties, this one is not beyond the reach of the enterprising milk farmer. There is a market always open for something that is really better than the ordinary quality. Butter, cheese, meat, bread, fruit, milk, and every other product that is of extra good quality, and is put up in a better shape than usual, will find a ready and profitable market. Just now there has been favorably introduced into the market pure, good milk, put up in sealed bottles holding one or two quarts, by which the consumer may be certain that the milk will reach him just as it came from the cow. Some time ago we illustrated a French method of distributing milk in bottles; but like most French affairs it was not well adapted for our more off-hand business ways. We here illustrate a practicable method of packing milk, in use in a Connecticut and a New Jersey dairy. The former

Fig. 1.—MILK CAN.

Fig. 2.—MILK CAN AND SKIMMER.

uses the bottle with glass covers, and sealed with a ring of cork and metal clasps, shown at figure 1; the second dairy uses this same bottle, and also that shown at figure 2, which has a glass cover screwed down upon a rubber ring, and has also a convenient handle for carrying it. The bottles are expected to be washed clean by the purchasers of the milk, as soon as emptied, and before being returned to be refilled. The extra labor and the use of the bottles cost something to the dairyman, which he, however, gladly shares with the consumers, who are supplied with pure milk with considerable unusual cream upon it, arriving sweet, fresh, and clean, and in excellent condition for keeping. They also have the use of a bottle in which the milk can be kept protected from the air until needed; and all these for no more, or for very little more, than they have been paying for the poor milk usually served to them from the peddler's cans.

This method of distributing is both convenient and economical, as it saves much of the waste made by frequent measurements, and loss of quality by constant repeated stirrings and disturbance of the milk in the cans and consequent exposure to injurious atmospheric influences. The bottle shown at figure 1 has a comparatively narrow neck, which to some extent prevents much movement of the milk; while that at figure 2 has a wide mouth, that renders the removal of the cream easy, by means of the dipper, shown in the engraving. The cream may also be separated by inverting the glass cover, and holding it close to the mouth of the jar; by inverting the jar, the cream may be floated to the top of the milk, which, by careful management

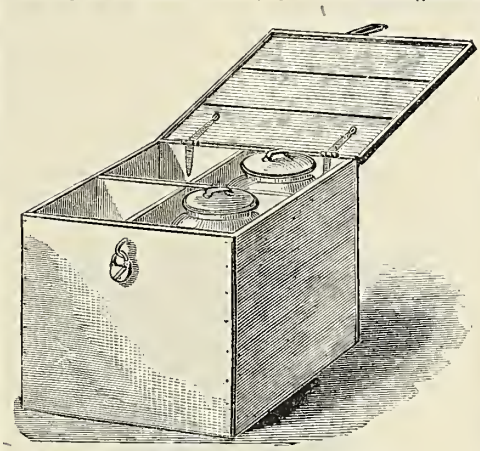


Fig. 3.—ICE-BOX FOR MILK.

of the cover, may be all drawn off, leaving the cream by itself, so that it may be saved for use separately. The bottles here illustrated are of beautifully clear glass; and are engraved from samples furnished by the "Dairy Supply Company" of this city, who have taken great pains to hit upon a vessel which shall be equally acceptable to both producer and consumer. A hint may here be given in regard to the delivery of milk in cans of the kind used by milkmen. In hot weather it is difficult to keep the milk sweet without ice. A method of using ice for this purpose is shown at figure 3. It consists of a box made of pine or ash, with rabbetted joints, tightened with white lead and fastened by screws, so as to hold water. It is divided into partitions, as shown, and thoroughly painted or oiled, or the divisions may be made of zinc. These are large enough to admit some pounded ice around the cans. The delivery cans are placed in these divisions and packed with broken ice; a piece of thick woollen blanket is put over the tops of the cans and the cover shut down. With a box of this kind thus furnished and used, the milk may be kept at a temperature of 50 degrees at the end of a route of several miles, if it is cooled to 40 degrees at the start. To cool the milk to this temperature, a Cooley Creamery, with 50 to 70 lbs. of ice daily for 300 quarts of milk, will be found convenient and effective; and it may also be used economically to keep over milk from one day to another in the best condition, a matter with which many dairymen experience much trouble. The above quantity of ice is sufficient after the creamery has been cooled down.

## Carriages for Moving Milk.

A correspondent sends a plan for moving milk from the stable to the dairy house. This work is usually done by carrying the pails in the hands, and

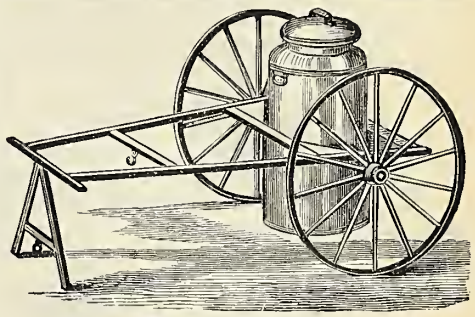


Fig. 1.—MILK CART.

is slow and troublesome, requiring several trips before it is completed. In this proposed method, a carriage is provided, of which a plan is given at figure 1. This shows a frame mounted on wheels, having a box to receive a large can of milk, and a foot-rest which supports the handle. At figure 2 is a strainer used to strain the milk the second time, as it goes into the large can; this has a wire gauze, and a fine muslin cloth tied below this, serves to further remove any impurity. Another plan used in a dairy known to us, is shown at fig. 3. This is a light carriage having several divisions in each of which a deep can can be placed, and the whole quickly and easily moved to the dairy and pool.

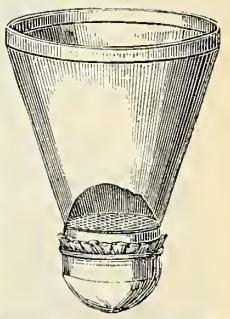


Fig. 2.—MILK STRAINER.

## Woodland Pastures.

The clearing of woodland for a pasture, may be cheaply done without burning. "Time is money" in agriculture; and by taking time, the expenditure of money may be saved; just as by spending money freely, an immediate result may be gained. When the money can well be spared, and it is spent judiciously, it can be made to return a larger interest in agriculture, than in almost any other industry. A hundred per cent is often returned in one year, or even less, by skillful management. But farmers must often learn "to labor and to wait," for want of sufficient capital to do as they might wish. In clearing rough woodland to be seeded to grass, the fine brush may be spread about, all else having been cut and removed for use or for sale, and the seed sown directly. The fact should not be overlooked, that much small wood may be profitably cut up for domestic use, that would otherwise be burned on the land, and comparatively wasted. The first shower will take the seed down into the soil or among the decayed leaves, where it will find

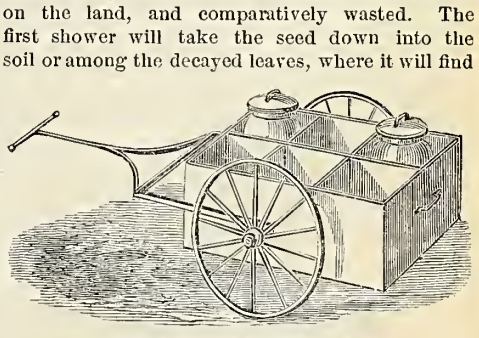


Fig. 3.—MILK CART NO. 2.

a congenial seed-bed, and spring up readily. The cattle may be turned into the field forthwith, where they will find some agreeable food among the sprouting shoots and young growth. By the trampling over the ground by the animals, the dry litter will be broken into small fragments and trodden down, forming a useful mulch, and this will afterwards furnish much fertilizing matter. An excellent pasture may thus be formed, which can be used

until the stumps have rotted and the ground can be easily plowed. A permanent pasture will always be found one of the most valuable parts of the farm, and if in clearing the wood, a few shade trees have been left, it will in many cases be advisable to keep the land in grass, which will, under these circumstances, grow vigorously, and recover rapidly after having been eaten down by the pastured animals.

## Corn Shellers and Grinders.

The magnitude of the corn crop has made necessary a corresponding effectiveness in the machinery for disposing of it. To shell more than 1,000 million bushels of corn requires a vast quantity of machinery, and the better and more effective this is, the greater the saving to the growers of the crop. The demand for such mechanical helps has greatly stimulated invention, and there are now on the market numerous excellent shellers and grinders, suited to the purposes of the smallest as well as the largest growers, and for the most extensive mills, cleaning as much as 3,000 bushels per day. The value of a machine of this kind may be estimated by considering the fact that 1,000 of them at work constantly through the year, would be sufficient to shell every bushel of corn grown in the United States. A machine of this character is shown at figure 1, which represents the "Geared Sheller" of the Sandwich M'f'g Co., of Sandwich, Ill.; it is adapted to run by the 6 to 8 horse powers used for ordinary threshing. For use in mills, steam power is applied by means of a belt....The same Company has a hand sheller called the "Veteran," shown at figure 2; this is able to shell and clean 300 bushels of corn per day....Another machine, of equal capacity, is shown at figure 3—the "Peerless Sheller," made by A. P. Dickey, Racine, Wis. This is intended to be operated by one person, who can feed and turn at the same time, by having a basket of ears at his left hand. This hand sheller has a capacity of 30 to 60 bushels of ears per hour. It is in feeding corn that we find one of the greatest present wastes of agriculture. The greater part of the crop is fed whole, and of this doubtless one-third is wasted, so far as regards feeding effect. Horses, cattle, and hogs bolt a large portion of the grain fed to them, and eject it whole and undigested. Frequent and careful experiments, if sufficient practical experience were wanting, have shown that ground meal is much more economical than whole grain, and that, not only is the cost of grinding repaid, but a large gain is made in the consumption of grain. In the writer's practice he has found that a given quantity of grain, fed ground, will keep working horses and cattle in as good condition as twice as much fed unground; and the purchase and use of a feed mill has saved in one year's feeding of 12 head of horses and work cattle as much as 500 bushels of grain, while the animals have been in a more healthy and vigorous condition, with less loss of time from the usual ailments of working-animals. Where many animals are fed, a feed mill is indispensable, and where but a few are kept, a small hand mill will be found to pay well for its use. Some time ago (*American Agriculturist*, January, 1878, page 17) we described and illustrated several feed mills for farm use, among others was the "IXL Mill" of the U. S. Wind Engine Co., of Batavia, Ill., which has a capacity of 20 bushels per hour with two or four horses....A farm mill, made by Livingston & Co., Pittsburg, Pa., is shown at figure 4. This is for hand or for power, and is cheap and useful for those who do not need a large or powerful mill. It has a capacity of 4 to 5 bushels per hour when run by power, with 500 revolutions per minute. For use where a small number of stock is kept, for poultry-keepers, or for domestic use for grinding meal, either of the two last mentioned mills will be found useful, as it would be to those who have a sufficient source of power to make it effective for a larger consumption. ....In the illustration below something new in the shape of feed mills is presented in the "New Improved Feed Grinder," made by the Stover Wind Engine Co., of Freeport, Ill. (fig. 5). This mill is the invention of O. E. Winger, a lad seventeen years of age, and is certainly a wonderful example of inventive genius in a mere boy. Its mode of operation is quite novel, consisting of the oscillating action of a lever which may be attached to the rod of a wind mill by means of an angular elbow; in fact, it is intended for the use of those who have wind mills near their barns; although it may be attached to and worked by a common horse power or even by hand. For attachment to a wind mill it has special advantages. By filling a capacious hopper it may be left to run all night as well as in the day-time, and needs no attention, working while the owner sleeps. It also utilizes a cheap power, which would otherwise have intervals of idleness or would run empty. The grinder, or mill, consists of a double metal case inclosing three burrs; two of these are stationary, while the central one revolves; the mill has therefore two pairs of grinding surfaces; in fact, is two mills in one, and does double duty. It will grind fine or coarse by adjusting a set screw, and can be affixed to any wind mill made in the country.

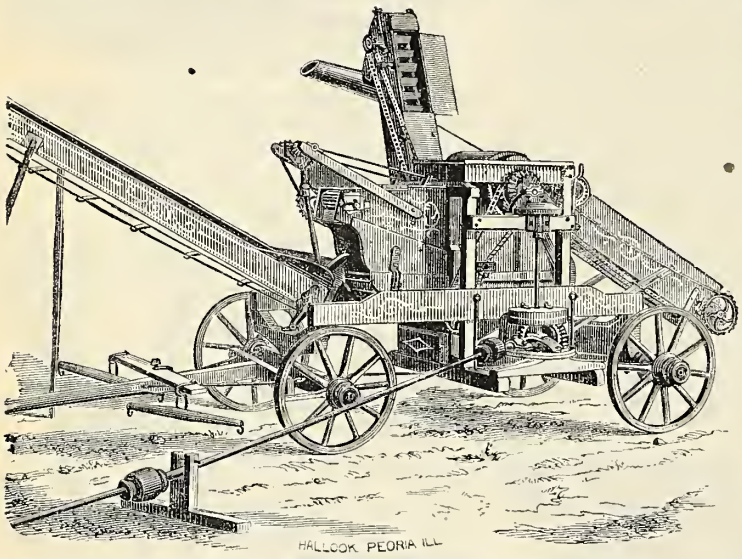


Fig. 1.—GEARED SHELLER.

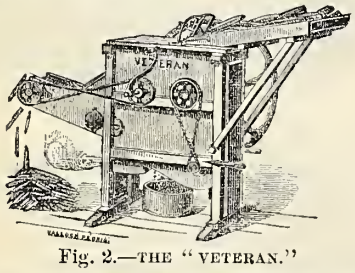


Fig. 2.—THE "VETERAN."

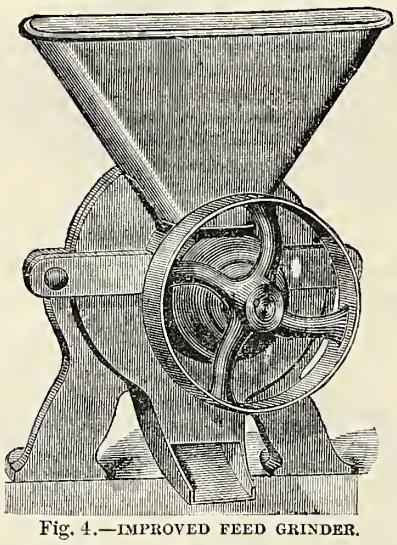


Fig. 4.—IMPROVED FEED GRINDER.

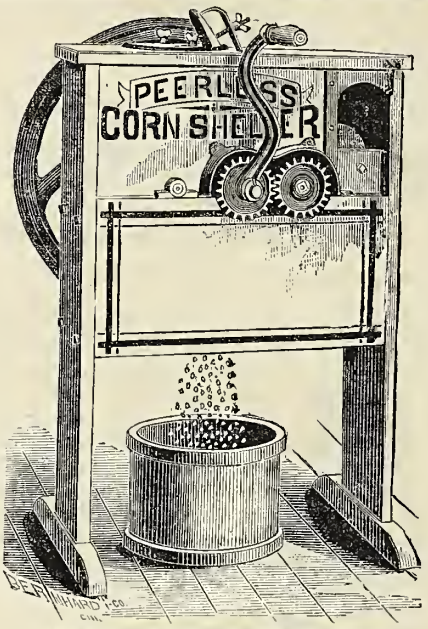


Fig. 3.—THE "PEERLESS" SHELLER.

## Protection against the Robbing of Robins.

After thirty years of gardening and careful observation of the Robin (*Turdus migratorius*), we are prepared to give him the first place among fruit thieves. We admit he is a comely bird, a fair singer, and in the early part of the season an industrious hunter of insects. But after his brood is hatched, he seems to eschew his old provender, and brings up his whole family upon the costliest products of the garden. No sooner are the June days come, than he perches upon the pear tree, and eyes the strawberries as they redden in the rows beneath him. Before you dream of picking any fruit, he begins to gouge their red cheeks, destroying far more than he devours. He then takes his turn at the cherries, the currants, the raspberries, the grapes, and not satisfied with the smaller fruits, he makes love to the pears, both upon the tree, and as they fall upon the ground. He feeds upon the fairest, and best, of the gardener's products, from June to October. If there is a more tantalizing robber in the village garden, we have not yet made his acquaintance. Yet this sturdy thief is so intrenched in the affections of the household, that it won't do to suggest cold lead for him, or snares, traps, or poison. The nuisance must be abated by gentler methods. We have hit upon one this present season, which is more effectual than anything we have ever tried. Discarded fish-nets are abundant all along the coast, and are sold for a trifle. The menhaden fish-net, or seine, has about an inch mesh, is forty feet in depth, and of any desired length. It sells for about four cents per pound, and a dollar's

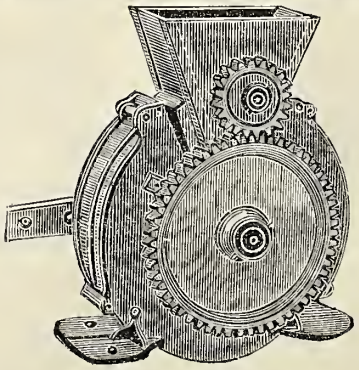


Fig. 5.—A FARM MILL.

worth of it will cover four square rods or more of strawberry vines. With light poles, and sticks, at the sides of the bed, the netting can be spread over the plants so as to exclude all birds from the fruit! It was an interesting sight, after this covering had been thrown over the strawberry bed, to see the Robins perched upon the neighboring trees, and to hear their protests against their exclusion from their favorite feeding ground. It was an impossibility for the birds to reach the ripening fruit. The netting is equally good to protect all the small fruits, and even peas, which are frequently injured by the Cherry bird. The fish-net in the garden is the grand desideratum we have been looking for during these thirty years. We publish it for the benefit of our afflicted fellow gardeners, who do not exactly like to kill Robins, and do like to save a fair share of their small fruits. CONNECTICUT.

## Roosts for Turkeys.

The turkey instinctively goes to roost at nightfall, and in its native haunts, takes to the highest trees, in order to be safe from numerous enemies. The domesticated bird has the same instinct, and prefers the roofs of buildings, or the branches of trees, to any perch under cover. Yet if taken in hand when the broods are young, turkeys can be trained to roost in almost any place not under cover. For safety, the roost should be near the house or barn. If left to roost upon fences or trees at a distance from the house, they are liable to be disturbed, or carried off by foxes, or by poultry thieves. The roost should be some 15 or 20 ft. from the ground. Poles of Red, or White Cedar, from 3 to 5 inches in diameter are the best material, and these are the most convenient sizes for the scaffolding upon which the birds are to roost. The odor of these woods is a protection against the vermin which sometimes infests the young birds. The size of the poles, for the roosts, is a matter of importance. It is much easier for these heavy birds to keep their balance upon a large pole than upon a small one. Then, in the freezing weather of winter, the feet of the birds are more completely protected by the feathers. Another advantage of having the turkeys roost together, is the saving of manure. If the ground under the roost is kept covered with muck, or loam, and occasionally stirred, several loads of a valuable fertilizer may be made every season. A roost made of durable wood, like cedar, will last for a lifetime. It is but a little trouble to train the young broods to go to their roost every night. And after the habit has once been formed, they will go to the same roosting place regularly every night. One of the secrets of success in turkey raising, is in having a secure roosting place.

**Cats as Farm Stock.**—"The harmless necessary cat" is not so well treated as it deserves. One rarely considers that a well kept cat may be more profitable than a cow. If one rat per day is destroyed, the services of the cat may be estimated as at least equal to $100 per year. Let us try to calculate the enormous damage done by 365 rats in one year, to say nothing of the ravages of the numerous progeny of so many vermin. One rat per day is a moderate amount of business for an active cat. Recently the writer counted five rats captured in a stable by one cat in one day, and possibly others were not seen. The cat being well fed, hunted for amusement, and did not eat the prey. This is the principal point in the management of a cat. It should be well and regularly fed, for rats are unwholesome food. They are infested with larvæ of tape-worms, and cats are frequently tormented with the mature parasites in consequence of devouring diseased rats. When kept free from hunger a cat will watch more patiently, and will only occasionally devour a rat or a mouse. The most healthful food for a cat is a mixed animal and vegetable diet. Milk and bread; a few potatoes with meat gravy, or a little fat, and a sprinkling of salt, with an occasional scrap of meat, are excellent food, and will keep the animal in good health. A farm can usually support four or five cats profitably, and these should be chiefly males, and the majority of these should be castrated. A castrated cat will grow to an enormous size, and if of a good breed, as the Maltese, will make a superb hunter.

## Cheap Sheds and Barns.

Much money is wasted in building sheds and barns of needlessly heavy timber. No timber need be larger or stronger than is sufficient to hold up the roof, and 4x4 studding or posts, will do this. Where strong winds prevail, much may be saved by having the buildings low. Indeed there is a saving anywhere, by having everything as near the ground as possible. The common idea that high buildings are the cheapest, because roof space is thus saved is erroneous, and it should not be forgotten that a three story barn must necessarily have a very strong and heavy frame to support its own weight, as well as the side thrust and weight of its contents. A studding, 2x4 inches, will be strong enough for a hay shed 8 feet high at the eaves, while one 16 feet high will spread, and sometimes burst with 6x6 timbers. Thus it may very often be found better to take up more ground, and make twice or three times as much roof surface, than it would be to

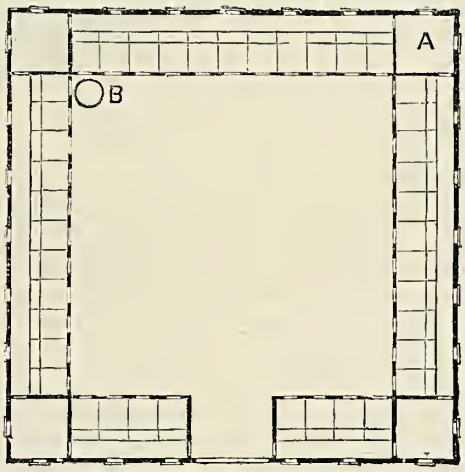



Fig. 1.—PLAN OF CATTLE-SHED.

save in floor and roof space, by building higher. We give here a plan of cattle sheds, recently built at a cost of only $15 per head of the cows sheltered, and for comfort and convenience, they are all that can be desired. To accommodate 10 cows in a shed costing $150, is certainly more desirable than to build a barn costing $1,500, that will supply no more room. Where economy must be very closely considered, this matter is well worth studying, and the plan here given, will furnish a very good text for it. At figure 1 is a plan of a shed having 41 box stalls, each 6x8 feet, and separated by boarded partitions 4½ feet high. The shed is 9 feet high in the front, 7 feet in the rear, is 12 feet wide, and 90, or 100 feet long. The roof is of boards. The frame is made of posts set in the ground, with a 2x4 inch plate

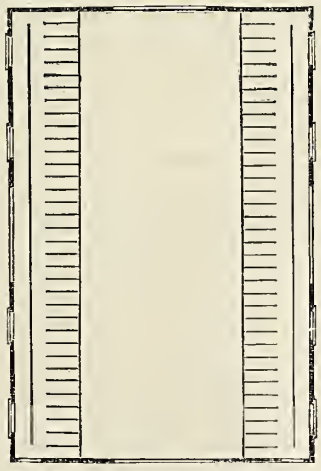


Fig. 2.—PLAN OF CATTLE-BARN.

and girts of the same size where needed. There is a feed passage leading from a room in one end (*A*, fig. 1), for preparing the feed which traverses the whole length. There is a feed trough in each stall, and a bar or pole is fastened along the whole range of stalls, 18 inches from the top of the front partition, by which the cattle are prevented from approaching the front too closely, and mounting the feed troughs, or putting their feet into them. The cows are kept loose in the stalls, unless otherwise desired; in which case they can be fastened to rings screwed to the sides of the stalls. A cistern, which collects the water from the roof, is made at *B*. The front of each stall has a double door, so made that the upper part may be left open for ventilation. Ventilating apertures may be made above each door, for use in cold weather. The sheds are arranged in a square, as shown, with a gate at one side for entrance into the interior yard. The yard will give room for exercise, and racks may be provided in it, for feeding green fodder, hay, or straw. The plan is admirably adapted for the soiling system of feeding, and the making of a large quantity of manure, while 40 or 50 cows are provided with comfortable room, at a cost of $600 or $750 only. In many cases, the value of the manure saved by soiling cattle in such a shed, will repay its whole cost in one year. A section of the interior is shown at figure 3. At figure 4 is a section of a cheap barn and stables connected. The building may even be brought lower at the eaves, and provide pens for pigs and calves, or sheep, or open sheds for tools, etc. In this way, it is protected from sweeping winds, which can have but little effect upon it. The central space is used for storing hay or grain, or for thrashing, and the side spaces for stabling cattle. Three and a half feet in length of floor space, will accommodate two head, so that a 70-foot barn will hold 40 head, and provide abundant room for the crop of 100 acres, at a cost of about $10 per running foot. Light timber only is needed, and rough posts set in the ground, will make the basis of the frame. The plan of the building is shown at fig. 2. It is arranged to be 70 feet long, and 50 feet wide, with the central space 26 feet, and the wings each 12 feet wide; wide doors are made at each end, and also through the

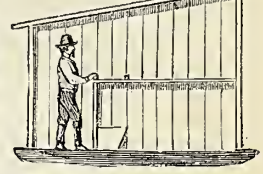


Fig. 3.—SECTION OF INTERIOR.

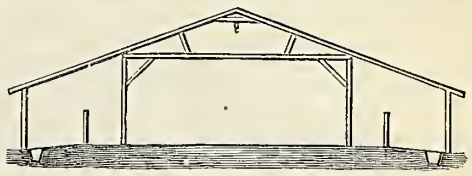


Fig. 4.—SECTION OF BARN AND STABLE.

center, and the stanchions or stalls in the center are movable, and may be easily taken down when it is necessary to use the central cross passage.

**Use of Capital in Agriculture.**—It was a shrewd remark made by an old farmer when an advocate of high culture was advising the use of costly methods, and enforced his ideas with the statement that the expenditure, although very large, would pay a good interest; "but how about the principal? when will that come back again?" he was asked. This is worth thinking of before one sinks money in improvements that are not permanent and do not add an actual value to the real estate. A drain; a well; a building; the clearing of land, and such permanent improvements, are worth all they cost for many years, and the profit from their use may be legitimately considered as interest on an actual investment. But a living animal, fertilizers, seeds, plants, and other short-lived property, should pay back not only a large interest, but the principal as well, if they are to be profitable. The expenditure of $100 in fertilizers ought to return $200 or more in the crop, else the cost and interest on that, and the labor involved, are not returned. This is a matter that needs close figuring and clear foresight before one invests money.

**Barn Yards.**—The condition of the yards and stock pens, should be well looked to at all times. There are several reasons for this. Chief among

these are the comfort of the cattle, and the quantity and quality of the manure. The bedding should be sufficiently deep and compact, to absorb the moisture and cover the droppings, and get not so much so, as to leave a mass of mixed straw, in place of good manure. It should also be amply sufficient to keep the animals clean and comfortable. The frequent summer showers should also be provided for, and the hollow places in open yards should be so well littered, that pools are not formed, or if they are, that they are covered over or filled with straw, or other proper absorbents. In course of time, when it comes to be admitted and believed, that the making of good manure, is a sufficiently important part of the farm business, to receive the consideration it deserves, we shall doubtless have before long covered yards and sheds, expressly for the making of manure.

## The Leaf and Its Work.

The leaf has been called the laboratory, or workshop of the plant, and a view of its interior should interest every cultivator. Let us examine, as for example, a leaf from a Lilac bush (fig. 1, *a*); we find here two principal parts, namely: the frame work, consisting of the stalk, mid-rib, veins, and veinlets,

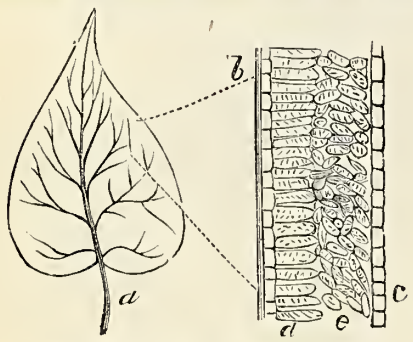



Fig. 1.—LILAC LEAF AND SECTION.

and the soft green "pulp" which fills up the space between the fibres of the frame-work. The "skeleton leaves," often made for ornament, have all of the soft green part removed, and only the frame-work remains. To look more closely into the green tissue or "pulp," a thin cross section of the leaf must be made, as indicated by the short, dark line from which the dotted lines, *b*, proceed. Having made a very thin slice by means of a sharp razor, we place it upon one side on a moistened strip of glass, and look at it with a Compound Microscope. We find that the section of the leaf consists of a number of oval and roundish bodies, or *cells*, *d*, *e*. We also notice a difference between the two sides of the section—on the upper side, *b*, there is a row of small, clear cells. This row of cells belongs to the skin of the leaf (*Epidermis.*) A similar layer of cells, *c*, is seen on the under side. This skin, or epidermis, covers the whole leaf, and from many leaves, such as the "Live-forever," it may be peeled off as a thin transparent film. Beneath, and

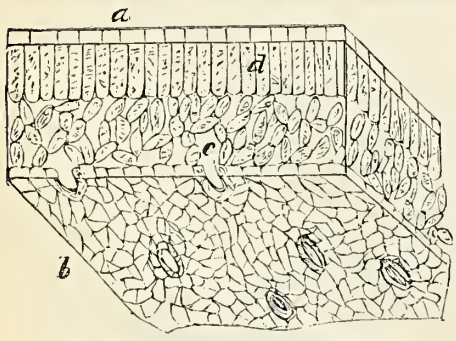



Fig. 2.—SECTION AND SURFACE VIEW.

next to the upper layer of epidermis, there is a row of long cells placed closely side by side, below which the softer tissue of the leaf is found, its cells being irregularly placed and touch one another at only a few points. There are many open places between the cells, called intercellular spaces. In the epidermis of the under surface (and to some extent the upper) of the leaf are small openings, or breathing pores, the *stomata*, which consist of an orifice surrounded by, usually, two *guard cells*. In figure 2 a very small part of a leaf is shown in section, *a*,

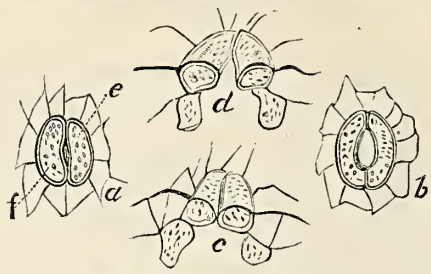



Fig. 3.—BREATHING PORES.

*d*, a portion of the lower surface, *b*, in view, with a number of these stomata open, and in place, *c*. The guard-cells—which are of a green color—are so delicately adjusted that they will contract or enlarge according to the conditions of the atmosphere, thus closing these little mouths in dry weather, and opening them when circumstances demand.

In the Lilac we have estimated that there are 18,000 of these minute pores to every square inch of leaf surface, but in some plants the number reaches 170,000 for the same space—they are of course very small. Figure 3 shows two of these stomata, more highly magnified—one open, *a*, and the other closed, *b*, also the same seen in cross-section, *c* and *d*. The guard-cells, *e*, *f*, are darker, with a thicker and more granular contents.

To return to the green cells of the interior of the leaf, we find upon separating them that their green color is due to minute granules of that color contained within the thin, colorless wall of the cell. In figure 4, *a*, is one of these cells, highly magnified. It is an irregularly shaped bag or sac in which the green granules (*Chlorophyll* or leaf-green) are contained. A separate grain of Chlorophyll is shown at *b*, still more highly magnified. The millions of Chlorophyll grains which a single leaf contains, and to which its green color is due, are composed of *protoplasm*, and together constitute the laboratory of the leaf, in which the many wonderful changes are wrought whereby the food which the plant gets from the soil and the air is made into the organized material upon which animals live. The crude ma-

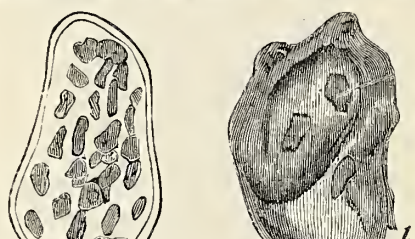



Fig. 4.—LEAF-CELL AND CHLOROPHYLL GRAIN.

terials upon which the plant lives come from the soil dissolved in water, and from the air in the form of gases, and reaching these little green grains of Chlorophyll, they are, under the action of the sunlight, changed into starch, sugar, and other products of vegetable life. We have thus found the seat of the work of assimilation, but *how* it is done is mere speculation to the wisest. It is well established that these green grains do the wonderful and important work of preparing the materials for plant growth, and, that they may be spread out to the sunlight, and also be so placed that the crude elements can reach them readily, they are stored in their walled cells (fig. 4, *a*), and these are packed rather loosely together and held in place by a strong transparent layer of cells making the skin or epidermis. Besides this, there is a stout frame-work of woody fibre to hold all in full exposure to the air and sunshine. This woody fibre also connects the leaf with the roots, so that the watery solutions from the soil may be brought to the Chlorophyll grains in the leaf. These solutions, as taken up by the roots, are extremely dilute, and have to be "boiled down" or concentrated; this is done in the leaves under the heat of the sun, and the watery vapor as it forms must have a ready place of exit. This is amply provided for by the many stomata in the epidermis of the leaves. The amount of water that is thus transpired is enormous, and is reckoned by tons in a single day from an acre of ordinary vegetation. These same openings provide for the admission of the carbonic acid gas from the atmosphere, from which the carbon is taken to form an important constituent of the various products of the plant, while the oxygen set free is returned to the atmosphere.

## Bone as a Fertilizer.—Preparation.

For about 30 years bones have been treated with acids, to reduce them to a soluble condition, or to break them down into a fine powder. When thus treated the residue is known as superphosphate of lime. But we now speak of them in their natural condition, and refer to methods of preparing them for use. Every farmer in the country can save a considerable quantity of bones of home production, and by a little trouble and attention can collect a large quantity from the dwellers of villages in his vicinity. We once gave notice to the boys in a village of 5,000 inhabitants, that we would pay 12½ cents a bushel for all the bones brought to a certain vacant lot; as the result more than 60 bushels were found and brought in wheelbarrows and baskets. Two boys who worked together, struck a "find" in an out of the way place, and from that and other places accumulated 24 bushels, and were very rich with their $3 received for them. In this way one can often secure at least as much bone as will return to his land a large portion, if not the whole, of the annual waste of phosphates. To overcome the difficulty of making use of them in a raw and unbroken state, the bones may be burned in a slow fire, preferably in a heap of brushwood, chips, or similar refuse. By slow burning all risk of waste from over-heating is avoided. When burned the bones are easily crushed to a fine powder, and then contain all the substances found in raw bones, excepting the nitrogen. This loss, however, cannot be helped, and it is better to submit to it than to neglect to use the bones.

By grinding raw bones in powerful mills they may be reduced to a fine powder, and in this condition are known as ground bone, bone dust, bone meal, and bone flour, according to the coarseness or fineness to which they are reduced. Thus prepared they are articles of general merchandise, and are kept for sale wherever bones are to be procured, or the prepared bone is in demand. The raw, unbroken bone is worth in the market about 1 cent a pound, when ground it is sold at prices varying from 1¼ to 2 cents a pound by the ton. When the bone is "raw," that is, in its natural and fresh condition, it contains all its nitrogen; but when steamed to extract glue, the nitrogen in great part is removed, and the bone is less valuable. On account of the difficulty of preparing bone without the requisite machinery, and the cheapness of the prepared article in the market, it is always preferable to procure the ground bone made by reliable manufacturers; otherwise the bones can be collected and prepared by burning, as above mentioned. Bones are valuable to put into the soil under grape vines and fruit trees. Clusters of roots will grow around and feed upon them for many years, or until they are entirely used up. They can be broken with heavy hammers, or even be put in whole—a peck to a half bushel scattered about in the soil where they will be reached by the roots.

**Deep Cans.**—The convenience and economy of space afforded by the deep can system of setting milk for cream, is more and more apparent as time passes. Many persons are changing from shallow pans to deep cans or pails, but we have not heard or known of one who has changed from deep to shallow setting. There is no necessity for a pool or spring, now that an excellent creamery or setting box in which ice-water can be used, is to be procured at a reasonable price. The Cooley Creamery answers every purpose of a cold spring, with some advantages that the latter lacks. The yield of butter may not be greater, but it is of better quality with the deep pans, and will keep much longer.

## Spring Bitter-Vetch.

Spring Bitter-Vetch is a not very elegant name for one of the finest of spring flowers. *Orobus* is quite as easy and a better sounding name. This, by the way, has a rather curious origin; it comes from the Greek words meaning *to excite*, and *ox;* this does not imply that it will madden an ox, like a red flag, but the *Orobus* of the ancients was a plant used to fatten oxen. The plant is a perennial, growing about a foot high, with numerous stems, which form a handsome clump. The engraving, from a branch, indicates by its leaves and the shape of its flowers, that it belongs to the Leguminous, or Pea Family. The leaves, with two or three pairs of leaflets, are of a dark shining green, and in the axil of each, a flower-cluster is produced. These clusters are in such numbers as to quite cover the plant with flowers, making it a most beautiful object, and one which varies in beauty from day to day, as its colors are singularly changeable. The flowers, in one-sided, nodding clusters, when they first appear, are purple, with some blue and green, and handsomely marked with red veins; in a short time the blue increases, until the whole flower is of that color. The lower flowers in the cluster being the oldest, this change to blue takes place in those first, and very often the lower flowers of a cluster will be of a bright blue, while the upper ones are of a rosy purple, presenting a variety as pleasing as it is unusual. This is a native of Southern and Central Europe, and is not mentioned as new—for it has been in cultivation for over two centuries—but as one of those really meritorious old plants that in the search for novelties are nearly lost sight of. Those who begin to cultivate flowers at the present day, are not aware of the many choice things that have been pushed aside to make room for the plants now so popular. While second to none in our appreciation of the good qualities of new plants, we do not think it necessary, in welcoming these, to discard the old, and while we keep our flower-loving readers advised of the introduction of new things, we think that we do them an equal service in reminding them of the merits of the "old-fashioned" garden favorites. As to this Orobus, we are glad to note that Mr. Robinson (editor of "The Garden," London), in his latest edition of "Alpine Plants," says: "This is one of the most charming border-flowers that begin to open in that sweet season, the end of April and the beginning of May," and that "It is one of the best ornaments of the mixed border in cultivation."—Though not properly an "alpine," it may be used upon the rockwork, but is quite at home in the ordinary garden bed. It was a great favorite with the late Mr. M'Nab, who, at the Royal Botanical Garden, at Edinburgh, grew it in long lines and in other attractive ways. With us it flowers later than in England, and is in perfection in the last half of May. It may be raised from seeds, the plants blooming the second year, and when strong enough, the clumps may be divided; or it may be obtained from most dealers in hardy plants.

SPRING BITTER-VETCH (*Orobus vernus*).

## The Edelweiss.

Among the noted plants of the higher Alps is the Edelweiss—a name which may be translated into "Nobly-white." Its botanical name is *Leontopodium alpinum;* the first, or generic name, being from the Greek words for *lion* and *foot*, as some one has fancied a resemblance between the clusters of flowers and the foot of a lion; the specific name, *alpinum*, of course refers to the high localities in which it is found. Its relatives with us are found in Cud-weeds and Everlastings, well known species of *Gnaphalium* and *Antennaria*, common everywhere, and all belonging to the great Composite Family. The Edelweiss is a perennial, with stems 4 to 8 inches high; these are furnished with narrow leaves, and bear at the top a crowded cluster of small heads of inconspicuous yellow flowers. Immediately beneath the flower clusters is a star-like whorl of oblong, spreading leaves. All parts of the plant are very woolly, but this whorl of floral leaves is especially so, and it is the white cottony down, borne so abundantly by these, that constitutes the chief beauty of the plant; in this, as in many other cases, the plant is not valued for its flowers, but for the more conspicuous parts which surround them. In its native country there is some romance connected with the plant. If an alpine maiden receives a bouquet of Edelweiss, it is an indication that her lover has risked the fatigue and dangers of an ascent to the higher Alps, where only it grows, and hence is very much in earnest.

EDELWEISS (*Leontopodium alpinum*).

It is one of the plants offered to travellers in the Alps, who purchase the small bouquets as mementoes of their journey. There has been much nonsense written about the Edelweiss, such as, being a plant of the high free air of the most elevated peaks, it would die when taken from its native home to lower grounds. Even Verlot, a recent writer on alpine plants, says that it can only be cultivated in pots of a special mixture of broken peat, crushed slate, etc. Notwithstanding this statement of so high an authority, we saw, a short time ago, upon a rockwork in the grounds of Woolson & Co., Passaic, N. J., a fine clump of the Edelweiss in full bloom. Upon inquiry we learned that the plants were set out last fall, and without any preparation of soil whatever. They were flourishing as satisfactorily as could be wished, and seemed to be as much at home, upon a rockwork a few feet high, as they could have been upon the most elevated Alps. The chief advantage of a rockwork for such plants is in securing thorough drainage, and we have no doubt that where this is provided in the border, the plant would flourish there. The engraving, of one of the smaller plants from the grounds above mentioned, gives a good idea of the appearance of this interesting hardy plant.

**The White Grub.**—In a former article we have advised catching and killing the parent insect as the most effective method of preventing the ravages of this most destructive insect. The parent insect is the brown beetle known as May-bug,

June-bug, and Dor-bug, and we suggested knocking it from the trees where it harbors, and catching it upon sheets. A correspondent, "R. H. R.," Rocky Hill, Conn., writes: "There is near the house a large Weeping Willow, and the beetles come to feed upon it. I take a lantern and a wash-tub, with a little hot water or strong soap suds, set the tub under the tree, and hang the lantern over the tub. The beetles fly against the lantern and drop into the water, where they are drowned. You would be surprised to see how fast they are caught. I have caught about four quarts in two evenings. The trap is not patented."—We do not doubt the utility of this method. Where the insects are on low bushes, or in the grass, and other small plants, the lantern may be set upon a stone placed in the tub to form an island. This and other destructive methods persistently followed will materially diminish the white grubs.

## The Pear Slug-Worm.

More inquiries have been made about the "Slug-Worm" that attacks the pear, and more specimens have been sent than in any previous year, and as we have not noticed it to be unusually abundant, we infer that our friends keep a closer watch upon their trees. It is not, as some suppose, a new insect, as we have the record, quoted by Harris, that the year 1797 was made memorable in Massachusetts by their abundance; they completely destroyed the foliage, and the air was filled with a sickening odor. We can best answer the questions as to their history, by the aid of an engraving borrowed from Packard's "Guide to the Study of Insects." The parent insect is a small fly shown at the upper part of the engraving, with a line to show its natural size. The body of the fly is glossy black, and its transparent wings show changeable colors. They appear late in May, or early in June, and finish laying their eggs in about three weeks. The larvæ or Slugs (*a*), are at first white, but soon become covered with an olive-green slime, which gives them a most repulsive appearance. When full grown, they are nearly half an inch long, largest in front, and are able to swell out the forepart of their body. They feed upon the upper surface of the leaf, from which they eat all the green pulp, leaving the frame-work untouched. The leaf in the engraving, shows the appearance of these naked spots, though when several are at upon one leaf, they leave only the skeleton. Their growth is completed in 26 days, during which they change their skin five times; they then fall, or crawl, to the ground, which they enter to the depth of a few inches, make a chrysalis, and in 15 days come out as perfect insects, or flies, to lay eggs for a second brood. The second crop of Slugs appears late in July, or early in August, and the chrysalids from these, remain in the ground until the next spring. Being two-brooded, it is desirable to attack the early brood when possible; at this time, the second brood will want attention. As they fortunately confine themselves to the upper surface of the leaves, it is not difficult to kill them. Lime air-slaked, or perfectly and carefully slaked, with just enough water to cause it to fall into a fine dry powder, is the most effective application; wood-ashes is the next best. Either of these placed in a bag of some open fabric, tied to a pole, may be dusted over the foliage. If but a very little touches the Slug, it is held fast by the slime, and soon finishes the creature. Hellebore, used as we have directed for currant bushes, is said to be effective. It has been stated, that fine road dust thrown over the foliage, would kill the insect as well as anything else, but it is found, that while this by adhering to the skin annoys the insect greatly, and causes it to drop from the leaf, if near the time to change its clothing, the Slug will cast off its old and soiled skin, and go to work anew. The name of this insect is *Selandria Cerasi*. The meaning of *Selandria* does not appear to be known, the specific name *Cerasi*, means "of the cherry," as it attacks the Cherry as well as the Pear, and has also been found on the Plum, and Mountain-Ash. The Rose-Slug is the larva of another member of the genus *Selandria*, and others still, attack the Grape and Raspberry.

PEAR SLUG AND FLY.

## The Use of the Feet in Sowing and Planting.

BY PETER HENDERSON, JERSEY CITY HIGHTS, N. J.

[The following are essential portions of a paper read by Mr. Henderson at the Annual Meeting of "The American Association of Nurserymen," held at Cleveland, Ohio, on June 18th last. The subject is an eminently practical one, and in the discussion which followed the reading of the paper, some of the most experienced nurserymen in the country gave their testimony as to its importance. The venerable Robert Douglas, of Waukegan, Ill., eminent as a grower of seedling trees, and especially evergreens, spoke from his 40 years of experience as to the great importance of having the facts here presented generally understood and acted upon.—Ed.] After some introductory remarks Mr. Henderson said: Though I have been extensively engaged in gardening operations for over a quarter of a century, I candidly admit that I did not, until a few years ago, fully realize the importance of the proper use of the feet in sowing and planting. Particularly in the sowing of seeds, I consider the matter of such importance that it can not be told too often or emphasized too strongly. The loss to the agricultural and horticultural community by the neglect of the simple operation of *firming* the soil around seed must amount to many millions of dollars annually. In many sections there was, this year, little or no rain, from the middle of April to nearly the end of May. This was particularly the case in the vicinity of New York City, where we have hundreds of market-gardeners who cultivate thousands of acres of Cabbages, Cauliflower, and Celery, with whose seed-beds the dry spring made sad havoc. In the way of plants to set out, there is not one-fourth of a crop of Celery, and of Cabbage and Cauliflower plants they have hardly half the usual number; and this failure is due to no other cause than that they persist in sowing their seeds without even firming the soil by rolling.

We sow annually about four acres in Celery, Cabbage, and Cauliflower, for the purpose of raising the plants, of which probably five millions are produced, and which we never fail to sell mostly to the market-gardeners in our immediate neighborhood, many of whom have even better facilities than we have for raising these plants, if they would only do as we do, *firm the seed after sowing*. After plowing, harrowing, and smoothing the land, lines are drawn by the "marker," which makes furrows about two inches deep and a foot apart; one man sows the seed and another follows him, who, with the ball of the right foot, presses down his full weight upon every inch of soil in the drill where the seed has been sown; the rows are then lightly levelled longitudinally with the rake, a light roller is passed over them, and the operation is done. With this method our crop has never once failed, and what is true of Celery and Cabbage seed, is nearly as true of all other seeds sown during the late spring or the warm months of summer.

On July 2d in 1874, I sowed, as an experiment, 12 rows of Sweet Corn and 12 rows of Beets, treading in every alternate row of each after sowing. In both cases, those trodden in came up in four days, while those not thus firmed, remained 12 days before starting, and would not then have germinated had rain not fallen, the soil being as dry as dust. The result was, that the seeds trodden in grew freely from the start and matured their crops to a marketable condition by fall, while the rows not firmed did not mature, as the seeds were eight days later in starting, and the plants were also enfeebled from being partially dried in the loose dry soil.

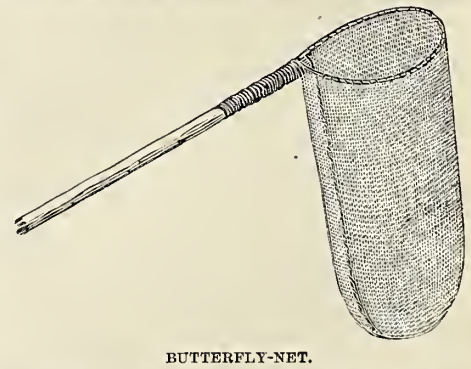
In August of the same year, I treated seeds of Turnip and Spinach in the same way; those trodden in germinated at once and made an excellent crop, while those unfirmed, germinated feebly, and were eventually nearly all burned out, the dry, hot air, penetrating through the loose soil to the tender rootlets. Of course, this rule, to tread in or firm seeds after sowing, must not be blindly followed. Very early in spring, or late in fall, when the soil is moist, and there is no danger from dry, hot air, there is no necessity to do so, and at other seasons, the soil may be in a suitable condition for sowing, and yet be too damp to be trodden upon or rolled. In such cases, these operations may not be necessary at all, for if rainy weather ensue, the seeds will germinate of course; but if there is a probability of continued drouth, the treading or rolling may be done a week or so after sowing, if there is reason to believe the seeds may suffer from the dryness.

Now if firming the soil around seed to protect it from the influence of a dry, hot atmosphere is a necessity, it is obvious that it is even more so in the case of plants, the rootlets of which are even more sensitive to such influence, than the dormant seed.

Experienced horticulturists are less likely to neglect this, than in the case of seeds, for the resulting damage is easier to be seen, and hence better understood by the practical nurseryman. With the unexperienced amateur, the case is different; when he receives his package of trees or plants from the nurseryman, he handles them as if they were glass, every broken twig or root, calls forth a complaint, and he proceeds to plant them gingerly, straightening out the roots and sifting the soil around them, but he would no more stamp down that soil, than he would stamp on the soil of his mother's grave. So the plant, in nine cases out of ten, is left loose and waggling, the dry air penetrates through the soil to its roots, the winds shake it, it shrivels up and fails to grow. Then come the anathemas on the head of the unfortunate nurseryman, who is charged with selling dead trees or plants. About a month ago, I sent a package of a dozen Roses by mail, to a lady in Savannah, Ga. She wrote me a woeful story, saying that though the roses arrived seemingly all right, they had all died but one, and what was very singular, she said, the one that lived, was the one that Mr. J. had stepped on, and which she had thought was surely crushed to death, for Mr. J. weighs 200 lbs. While we do not as a practice advise any gentleman of 200 lbs. to put his foot upon the top of a tender rose plant, yet if Mrs. J. could have allowed her weighty lord to press the soil against the *root* of each of her roses, I much doubt if she would have had to mourn their loss.

## Look to the Cabbage Worm.

The European Cabbage "worm" is still very troublesome in many places, and unless it is vigorously looked after, great damage will result from its ravages. The butterfly which lays the eggs, from which the caterpillar, or so-called "worm" is hatched, comes early, and, in its several broods, remains during the season, so that the eggs, which


BUTTERFLY-NET.

are deposited on the under-side of the leaves, and the worms are to be looked for at all times. It should be borne in mind that every female butterfly that is destroyed prevents a large brood of worms, and the war should begin here. The white butterflies, with black spots, are often seen like a cloud over the cabbage field, but while mating they are found elsewhere. With a butterfly-net, made

of mosquito-netting, attached to a hoop with a handle, as in the engraving, large numbers can be caught, especially in early morning when their flight is slow. Children will soon become very expert with the net, and when one is caught, a pinch of the upper part of the body, through the net, only anticipates a death that would naturally occur a few days later. Kill all the butterflies possible, as with each female at least 50 eggs, and consequent "worms" are destroyed. The eggs, which are tapering, or bottle-shaped, and prettily marked under the microscope, stand upon end in clusters of 2 to 12, and should be destroyed when found. Still, in spite of all care in killing the butterfly and destroying the eggs, some caterpillars will be found, and these should be attended to—the earlier the better. It must be remembered that the part upon which the worms work is the food portion of the plant, and any thing poisonous, like Paris Green, or Hellebore, will not answer in this case. Ashes and slaked lime have been used by many with success. Hot water—about 160°, just hot enough to kill the worms and not injure the plant is one of the best remedies on the large scale. A weak brine, made with a piut of salt to a pailful of water, applied with a watering-pot provided with a fine rose, is economical, efficacious, simple, and perfectly safe. Whatever application is made, do it early, as the caterpillars soon hide under the leaves of the forming head, and being thus out of reach, may next be met with upon the table.

## The Huckleberry Fungus.

Branches of the huckleberry-bush are often sent to us, upon which there is a peculiar abnormal development of the flowers, fruit, or leaves, or all combined. The engraving is made from specimens, which were sent from Steele Brothers, La Porte, Indiana, who state that is very common in that section. The cause of this trouble is a minute fungus, known botanically as *Exobasidium Vaccinii*, and belongs to the great group, which includes the mushroom, toadstools, puffballs, and larger fungi,

HUCKLEBERRY FUNGUS.

but differs from them in its habit of growth; they growing on dead organic matter, while this is found only on living plants and is a true parasite. This fungus assumes many different forms, depending on the species infested, and the part of the host-plant affected. When upon the leaves and branch, it is first manifest in the stunted growth, followed by a thickening of the parts and a taking on of the most beautiful shades of red, scarlet, and orange, thus making the affected branch resemble a large and showy flower, often mistaken for, and gathered as such, for their beauty, by those who see no deeper than color in flowers. When the flowers and young fruit are attacked by the fungus, they enlarge to several times their natural size, and soon become covered with a white powdery surface, which is due to the vast multitude of spores which are formed. In the engraving, some of these enlarged berries are shown in the upper portion of the cluster, with normal ones below; and a twig affected, though not as badly as many we have seen, is given below and to the left. The remedy for this disease is to remove and burn all affected parts.

# THE HOUSEHOLD.

☞ *For other Household Items see "Basket" pages.*

## Home Topics.

BY FAITH ROCHESTER.

### Measles.

This seems like venturing upon forbidden ground, for I know that the Editor does not want any "remedies" for diseases sent in, nor any dissertations upon particular diseases from "lay-members." But three of my little flock have just passed in safety this way-mark in the progress of childhood, and the subject has interested me so much, that I want to impart such help as I can to mothers who may wish to know how to meet this particular emergency. This is one of the diseases sometimes called self-limited. It is popularly formulated thus: "three days to come out, three days out, and three days to get over it." This is the general rule, but there are exceptions. The first symptoms appear a week after exposure to the disease, though they are sometimes so slight as to escape notice, and the eruption, nine or ten days after exposure, is the first intimation of the presence of measles. It usually seems at first like a severe cold—a cough, running nose, headache, red and watery eyes, with more or less nausea just before the breaking out upon the surface of the body. Often the child plays about as usual—my children did on the first two days, before the breaking out, and the youngest did so every day, except on the fifth day, or on the great breaking out day. Then he lay and slept a good deal. Of course you can not do anything to *cure* the measles. The contagion once fully at work in the system, the disease must run its course, and then the child will be "cured," but by no medicine or nursing of yours. Good nursing may bring it *safely* through, and lack of it, or the opposite of good nursing, may cause its death. Only try to keep the body in good condition, and so give Nature a fair chance to expel the poison in her own way. Keep the skin clean—a bath before the breaking out begins is desirable, and I believe (from actual experience) that a warm bath (decidedly *warm*) very carefully given, so that no part of the body be chilled, is better than any herb teas for "bringing out" the measles well. But neither warm bath nor warm tea is necessary if the body is in other respects in good condition—the bowels open, the stomach nourished by plain easily-digested food without stimulants, the temperature of the room as warm as may be comfortable, the air pure, and no over-taxation of body or mind. I treated the cough that goes with measles as I do all coughs in their beginnings—and this "stitch in time" saves the necessity for treating hard coughs, I find—I put a bandage wet in cool water, and covered by a dry one, around the neck. The great caution universally given is: "do not let the patient get chilled in the least. *Keep warm.*" It is desirable that the measles should "come out" well. The eruption usually appears first upon the head and neck, and spreads gradually downward, fading away first from the head, downward. It begins to appear about the fourth day, if the disease progresses as it should. The great fear seems to be that the measles either will not "come out" thoroughly, or that having "come out," they will "strike in" or disappear suddenly. Getting chilly is the main cause of the so-called "striking in," but improper eating or undue exercise, or mental excitement, may have this effect, and then warm drinks (simple hot water is the best thing) or warm baths, or both, must be resorted to—anything to open the pores of the skin and bring the spots out again. If one does not pass through the measles well, some troublesome disease may follow as a sequel to measles. The most common of these are bronchitis (or "sore throat"), ophthalmia (sore eyes), and difficulty about hearing. One of my little girls complained much of her eyes, wished the room darkened, and wanted a wet cloth on her eyes almost constantly for a few days. I did not let her use her eyes for reading, writing, or sewing, during her recovery, and for some days afterward. The other two had the measles very light, though one of them was as spotted as a person could well be, and speak of their "spots" in the plural number. The one who had the disease most severely was first taken, though I think the other two were exposed at the same time with her, and possibly she might have escaped had she been in equally good health at the time. The others caught it of her, and were a week and a day behind her in the symptoms. The baby went through it all, living in the room with it night and day, without catching measles at all. I was very particular about airing their day clothing at night and their bed clothing during the day, and about ventilating the rooms, sometimes covering the patient all up in bed while I opened the windows, though the spring weather made ventilation usually quite safe. I am told that babes under six months of age seldom catch the measles. It is desirable that children should go through this ordeal in their early years, as the disease goes harder with adults, and is more likely to leave some lingering disease.

### Flies in the House.

Yes, I think I see them—in your house perhaps, but not in mine. For I write this before the flies have fairly begun to come, and when you read it they will be buzzing about in the most disagreeable and impertinent manner in dwellings where no care has been taken to keep them out. I have never taken much pains in this respect, but I have suffered the penalty for former neglect until I have resolved to bear it no longer. I have said that I would rather take the bother of the flies than the worry of keeping them out of the house, but now we are all agreed to make an effort to have comfortable rooms all through the house. We have netting on all of the windows, cellar included, and netting on outside doors, with springs to make these shut themselves. It is worth a great effort to have a decent table and eat without quarreling with the flies, to have a quiet place where baby can take his naps in peace, and to have your own early morning dreams undisturbed by buzzing crawling insects. We are ready for the flies now, and I do not think more than half a dozen have got into the house as yet. We shall hunt those down, and if necessary I shall set occasional traps to catch them. For this purpose I have never had anything better than a tumbler partly full of soap-suds covered with a slice of bread cut to fit over the top, with a hole in the center of the bread smeared with molasses, and with molasses on the under side of the slice. The flies crowd together to feed upon the molasses and tumble into the suds and drown.

### Where do Flies Come from?

The economy of Nature is very wonderful. They tell us that the mission of flies is to feed upon poisonous matter in the air. They breed in filth and thrive in unclean atmosphere. Then the spiders come to catch the flies. It is hardly a personal matter. Where dwellings are far apart, and the whole neighborhood is cleanly from a sanitary point of view, flies will be scarce, but they will come into your house and annoy you in various ways, however nice your house-keeping, if there are breeding places for flies near by, and if the air that circulates through your house shares the impurity common to the common neighborhood. So you can never afford to attend to your own premises and your own family alone. It is minding your own business to keep an eye on the whole neighborhood. You need not be prying and meddling with other people's affairs, but after you have made sure of setting a good example, try to have every one around you enlightened somehow in regard to healthful living—the necessity for pure air, pure water, and a care-

ful disposal of all waste matter, so that it may not become a nuisance and a poison. Flies come in from out-of-doors. They come from the stables, the compost heaps, the pig-pens, and other out-houses. They seem to spend considerable time and pains cleaning their feet, but the more I think of it, the more strongly I object to their presence in my rooms. They breed fast, and each one may become the parent and grand parent of countless hosts in a single season.

Fig. 1.

### A Word about Pies.

I am glad to let "pies 'n things" pretty much alone, but we do like a good wholesome pie now and then. We never use lard for shortening, and seldom have more than one grade of butter, and that the best we can get, though not necessarily the most expensive in the market. For instance, I buy butter of a neighbor who makes it to sell to one regular customer, who pays her the same price the year round, however the market rate may fluctuate. I do not buy her butter, and she does not use it herself, but she tells me frankly that the butter which her husband buys in the country for a little more than half what she gets for her own butter, is every bit as good as hers. I think so myself, having tried both, but her reputation for care and neatness commands the extra price from her wealthy and particular customer. With good butter for shortening, and not too much of it, pie-crust is good and not unwholesome, and cream-crust is better still. But the common lard pie-crust seems to me a sheer abomination as many housekeepers make it. They use too much shortening, and in an unskillful manner, and the taste of the lard spoils the flavor of the pie. It amuses me to see my children refuse it with a wonder how other people can eat it, and why any one ever makes it. They think mamma's pies, even when made with graham flour in the crust, are very much nicer, and certainly no stomach has ever been hurt by them.

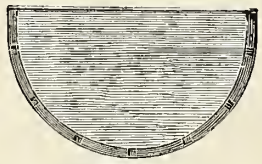


Fig. 2.

Fig. 3.

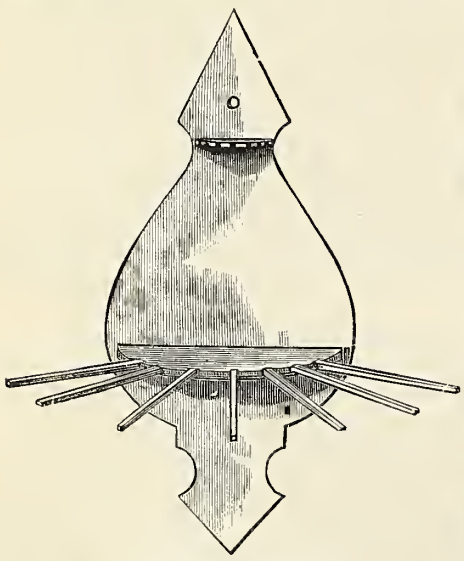


Fig. 4.—RACK OPEN.

I use a *very little* baking powder in pie-crust, mix the dough pretty stiff, but do not knead it, roll it thin, and bake the pie slowly and thoroughly. Several times I have seen complaints about pies running over in the oven, or directions for avoiding this catastrophe. The well-baked rhubarb or pie-plant pie just taken from my oven did not run over a particle, and this is the way we do it: Slice the stalks half an inch long, sugar very plentifully (a teacupful to a large pie), but do not add a drop of water. Wet the edge of the under crust all around and pinch down the upper crust tight upon it. Then have the heat of the oven very moderate, just sufficient to keep the pie baking and no more. An hour is not too long to bake a rhubarb pie, or a pie filled with berries, but a hot oven would boil over the juice and burn the crust in that time.

PLAIN SWEET BISCUIT.—A cup of sour Cream, with half a teaspoonful of Soda, one cup of Sugar, one Egg, a little Nutmeg or Cinnamon, and Flour enough to make a soft dough. Mix very quickly, beating the egg first and putting the dissolved soda and sour cream together last. Roll out half an inch or a little more in thickness, cut into small biscuit, and bake quickly. If your sour cream is only milk, make up the deficiency by a good tablespoonful of butter. These are good made with graham flour. Thick old-fashioned cookies like these are much better for the children (and for me) than crisp cookies with more butter and eggs.

HOW MUCH SODA?—I have before this given the proportions as they were taught to me by careful cooks—a level teaspoonful of soda to one even teacupful of sour milk or buttermilk. This is a smaller proportion of soda than has been advised by another contributor to these pages. But I have been astonished to hear, and to learn by experiment, that only half as much, or one-half of a level teaspoonful of soda to a teacupful of sour milk, is even better, and now I never use more, as I find that this amount perfectly neutralizes the acid in the milk and makes my biscuit and gems even lighter than before, it seems to me. I am more than ever convinced that it is best to steer pretty clear of the use of soda, and this can be done, without falling back on baking powder too. But both are handy to have on hand to use occasionally.

## Old Furniture.

As a nation, we are not a lover of old things, but we run after those that are novel. We set to one side, anything that is at all old, and say it has had its day. This spirit is excusable in many things—such as machinery, where rapid progress is made, but it has been carried into all departments of life, and too often in the American youth, extends to a proverbial disregard for his aged superiors. In this general disrespect for aged persons and things, one of its most painful manifestations is the putting out of sight of all old furniture. It is a sorry thing to go into many of the garrets and sheds of country and other houses, and find piled away there, so many articles that were the care and comfort of the former generations of the family. Compare these rejected chairs with those now in use—they are as substantial and easy, and above all, they should be dear to us in memories and associations. We should have more room for memories—we should love the things that our grandfather made, and our grandmother had in daily use—we should keep the old sofa in its appropriate place, where we may rest our weary limbs, and live over the early days of the past, and should we fall into a reverie, and see in our day-dream our good old grandmother, who first folded our little hands to rest on the same old sofa, we should be none the worse for it.

**Ants in Lawns.**—Whether ants are more numerous this year than usual, or people are giving more care to their lawns than heretofore, we can not say, but we have had more inquiries concerning ants in lawns during the past two months, than we have had in several years altogether. This is one of the afflictions that we have fortunately been spared, and as we cannot speak from personal experience, we must ask for that of others. That a considerable number of our readers have been troubled with ants in their lawns and grass-banks, and have utterly failed to exterminate them, we already know. A list of failures is useful in one sense, as it gives us a record of the "remedies," that do not remedy. What we wish now, is an account of the successes. If any readers have succeeded in routing a colony of ants that had become established in his lawn or grass plot, by means that does not unfit the soil for the future growth of grass, they will confer a great favor upon many, by making it known through the medium of the *American Agriculturist*.

## A Clothes-Rack.

A correspondent at Oak Hill, N. Y., sends us drawings of a rack for drying small articles, that is in very general use in his vicinity; this he thinks is more easily made and more convenient than the one given in April last. He says: The back can be formed to suit the fancy, and made of whatever wood may be preferred; if of pine or bass-wood, it may be stained. The upper shelf or rest (fig. 1) for the rods is a semi-circle fastened by screws inserted at the back. It need not be more than one-half-inch in thickness. The lower shelf (fig. 2) should be at least one and one-half-inch thick, and is a semi-circle, the diameter of which is two inches less than the width of the back upon which it is to be fastened. In the rim of this shelf cut a groove sufficiently deep to allow the wire (fig. 3) to be sunken to the depth of ¼ inch. The wire being bent in circular form, passes through the rods or slats, which should be ⅜ inch in thickness, at the fastened end, fig. 4, the ends having a thread cut upon them, and passing through the back are fastened by small nuts. It will be seen that the rods are bevelled at the lower end, and a corresponding bevel ⅜ inch wide must also be cut on the under edge of the lower shelf at intervals, the number of bevels corresponding to the number of rods required; the rods when in use should be as nearly level as possible, fig. 4. When not in use, they are merely turned up against the upper rest or shelf, as seen in figure 5. In this respect this rack much excels your model in the April number, as it is entirely out of the way, and withal the whole affair is, when properly constructed, quite a pretty kitchen ornament. It is easily and cheaply made.

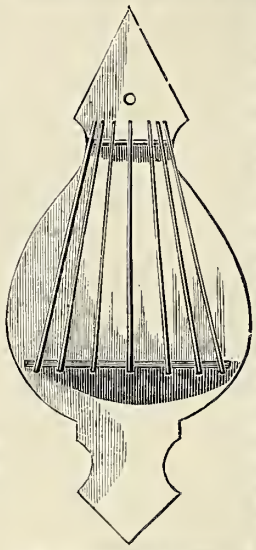


Fig. 5.—RACK CLOSED.

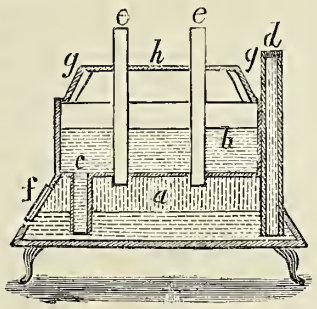
## Thermometers.

The weather is said to be the only question upon which we can all agree; but a little observation will show that this is no exception to the general rule of being subject to differences of opinion. Heat and cold are but relative terms to be decided by each individual. Where one person is cold, his next neighbor, under the same circumstances, may be warm, and there is but one way of deciding just how warm or cold it really is, and that is to leave it to a third party which is without feelings, and upon whose decision we can all agree. Such is a thermometer. How often in the times of extremes of temperature we may hear the expression: "I only wish I knew how hot it has been to-day!" or "I wonder how cold it was last night!" Aside from the simple pleasure to be derived from having a thermometer, it is of great use in giving us a true knowledge of the heat of our rooms, at any moment, thus aiding us in keeping them of the proper temperature—of about 68°. It is a good plan for young people to be taught to do something at a particular time, and to make and put down daily observations of the temperature will encourage regular habits, while the record will possess sufficient interest to compensate for the trouble. Thermometers are now so cheap, that everybody may possess one; those of low price are quite as likely to be accurate as those made with an ornamental mounting. The excellence of the instrument depends upon having the tube of equal bore throughout, and the care with which the degrees are marked upon the scale.

Whatever may be added increases the cost without adding to the value. Let us have a thermometer.

## Kerosene in the Kitchen.

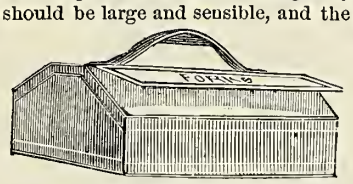
Soon after Kerosene came into general use for illuminating purposes, attempts were made to use it as a source of heat as well as of light, and stoves of various kinds were devised both for warming small apartments and for cooking. It is to its use as a source of heat in cooking that we would call attention at this time. The first attempts at kerosene cooking stoves were very crude. A large lamp-body to hold the oil, two to four such wicks and wick holders as were used in ordinary lamps, and a frame of some form to hold the cooking vessel, were the essential parts of the affair, and some had a chimney to increase the draft. Though these were difficult to manage, and would often smoke in an annoying manner, they were more or less useful. In almost every household it is often desirable to have a source of heat without making a fire, and in the summer months a small family rarely requires fire in a stove or range more than a few hours in the day, and on many days it does not need even that. In cities and villages where gas is used for lighting, gas-stoves, of various sizes, are much used. In some families all the cooking in summer is done by gas, and in others, where the stove or range is used in cooking the dinner, the gas-stove supplies sufficient heat for breakfast and tea.



LAMP OF "WINDSOR" OIL STOVE.

The majority of people are beyond the reach of gas, and need some substitute. Alcohol, from its price, is out of the question, while kerosene, being very cheap, and having abundant heating powers, is the available substitute, and would come into general use, did people feel that it was *safe*. The number of kerosene stoves that have been invented shows that there is a demand for such an article. They will do all sorts of cooking, and a small family, for several months in the year, can get along with one of these, without any other fire, save on washing days. Stoves of this kind have, in common with gas, a great advantage over coal stoves. The fire is kindled at once, and put out at once; there is no loss of time and fuel in getting ready, and no waste after the cooking is done. When we lived within reach of gas, we found, notwithstanding the cost, as shown by the remarkable contrivance called a meter, (which measures, whether gas is used or not), its convenience so great, that we used it for cooking in summer. Living now where gas can not be had, various kerosene stoves have been tried. Some have been only partly satisfactory, especially in baking; others worked well in every respect, including baking, and we have had as fine bread from a kerosene-heated oven as ever came from one heated by coal. But however efficient the stoves, at first, they would soon be used only occasionally, and then not at all. We found, no matter how much labor was saved, or how much more comfortable the kitchen without a fire in the range, the kerosene stove would be put aside. The help, who control such matters, becoming afraid of the stove, apprehending an explosion, would not use it, and there was an end of the matter. Having experienced the great convenience of such a stove, we were especially pleased to meet with one so constructed that even the most timid person, if but fairly intelligent, could see must be safe from anything like an explosion. It is very easy to show that *oil itself* can not explode, but that the danger comes from the *vapor* of the oil mixed with air. If a lamp is "chock full" all the time, there is no place for vapor, and there can be no danger from that source. The lamp of the "Windsor Oil Stove" is so constructed that it must be always full. There can not be, if the simple directions are followed, a thimbleful of vapor. This oil stove is provided with the needed accessories of oven, extension-top, etc., much like other oil stoves, but in its oil reservoir, or lamp, it is so unlike any other that we have seen that we give a diagram showing its structure. The engraving makes no attempt to accurate proportions, or to show anything but the parts concerned in holding the oil, which are given in section. The oil reservoir is shown at *a*, and is completely closed, except the openings for the wick tubes and the supply tubes. Above this is an open pan, *b*; from the bottom of this pan there is a tube, *c*, going nearly to the bottom of the reservoir, *a*; at *d* is the filling tube, which reaches almost to the bottom of *a*, extends up some inches, and is closed by a screw cap. The wick tubes, *e*, *e*, are quite long, passing through the pan, *b*, and sufficiently far into the reservoir, which has at *f* a glass window, to allow the hight of the oil to be seen. At *g*, *g*, are supports which hold up what we may call the the stove proper, a cylinder, not shown, upon the top of which the cooking utensils are placed; the bottom of this cylinder is formed by a sheet of perforated metal, *h*, through which the wick tubes pass. Of course there are contrivances for regulating the wicks, and other conveniences, but our business is only with the oil reservoir. Now, to fill this lamp, water is poured into the pan, *b*, until, passing through the tube *c*, it fills the reservoir *a*. When *a* is full of water, then oil is poured into it through the filling tube, *d*; of course this will rise to the top of the water in *a*; but the tube being long, sufficient pressure is exercised to drive the water out of *a*, through the tube *c*, into the pan *b*. More or less oil may be put in, as desired; the amount being seen through the window, *f*. In the diagram, water is represented by short, horizontal lines, and oil by perpendicular ones. After *a* is partly filled with oil, the wicks are put in. A glance at this diagram will show that so long as there is any water in the pan, *b*, the reservoir must be full of either water, or part oil and part water; the window shows when the oil needs replenishing. So long as there is water in the pan, there can be no space in the reservoir for vapor, and it is manifestly impossible for an explosion to take place. As we intended to describe only the seat of possible danger in such stoves, the oil reservoir, we dismiss the cooking portions by saying that they appear to be abundant and well made.

**A Knife Box,** is not a new thing, and in giving an engraving of one, we do it to remind those who are still without this useful article,—of its great utility. A knife box should be large enough to hold the knives and forks in every day use, and nothing more. It should be so constructed, as to not be ugly; in fact, it ought to be neat, and of a shape to take up no extra room in the pantry. The handle should be large and sensible, and the partition through the middle of the box always separate the knives from the forks; there should be a lid to each side, to keep out the dust, as in the engraving.

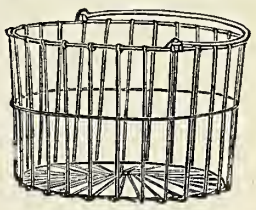

KNIFE BOX.

## Handy and Easily Made Steps.

There are many occasions in the daily work of the housewife when a step-ladder, or perhaps better, a step-stand, is the one thing needed. There are curtains to fix; windows to wash; a high shelf to reach; pictures to hang, and a multitude of cases where a chair is not high enough, the table is unsafe, and some kind of a steps are desired. The engraving shows a step-stand, which has two important qualities, viz.: a broad place to stand upon at top, and it can be easily and cheaply made. It is a step-stand which has no means for folding up and lengthening out, is substantial and safe, and is not patented. The engraving shows how it is made. It may be of any size, but one that will pass readily through an ordinary door, and is about three feet in hight, will be of a handy size. If the legs are made of hard-wood, they need not be very large, and the braces, which serve as steps on the front side, can be nailed, but it is better to screw them, to the legs. The top should be so large that a person can stand upon it, with room for a pail. The three short braces beneath the top are not shown in the engraving, but should not be omitted in the construction. This step-stand may be made by any one who can use a saw and drive a nail. Many families who can not afford to buy a step-ladder from the stores, can build one for the few cents the lumber and nails, or screws, will cost. Aside from the household, such a step-stand will serve a good purpose in picking fruit.

A STEP STAND.

**A Boiling Basket.**—The utensil shown in the engraving, is to hold the vegetables to be cooked, and is set in the boiling pot. The ease with which the potatoes, etc., can be removed from the boiling water as soon as they are done, and the perfect draining which they afterwards get, make this a very convenient and useful affair. "Sogginess" in potatoes, is largely due to imperfect draining after cooking, which the Boiling Basket generally overcomes.


BOILING BASKET.

**Rye Bread,** by Mrs. "T. B. F.," Chicopee, Wis. Set a sponge over night as follows: One cup good yeast; six potatoes, mashed fine; one pint warm water; three cups flour; two table-spoons lard; two table-spoons brown sugar. In the morning, mix with this, one quart warm sweet milk; one table-spoon salt; one cup Indian meal, and enough rye flour to make a pliable dough. In warm weather add one tea-spoon soda dissolved. Mix it well and let it raise for two or three hours; then mould into loaves, raise, and bake in deep pans.

# BOYS & GIRLS' COLUMNS.

## The Doctor's Talks.

In our last talk about Matter we reached a point where we can no longer use our eyes, even when aided by the most powerful microscope, for you will recollect we were

TALKING ABOUT ATOMS,

or the particles of which all matter is made up. While these *atoms* have never been seen, all that we know about matter gives evidence that they exist. Everything that we do know, then, points to the belief that matter is made up of minute globes or spheres, called atoms, with spaces between them. We can represent by the diagram, figure 1, this idea. Understand that no one has ever seen this, but in order to explain the various properties of matter, we feel very sure that this must be the real condition of all bodies. Supposing then that these atoms really exist, we have now to consider what holds them together. You know that the atoms of steel are held together more firmly than those of lead, and in the lead they are more firmly held than in wax or tallow. The atoms are bound together by a power or force called

Fig. 1.

COHESION, OR ATTRACTION OF COHESION.

You will notice that this is a very different force from one we talked of a while ago—the *Attraction of Gravitation*, or *Gravity*. That acted between one mass of matter, or body, and another, while Cohesion acts between the particles or atoms of the same body. This force, as already

hiated, varies greatly in different kinds of matter, and many of the properties of matter are due to strength with which the atoms are held together. If this force of Cohesion is so stroag that the atoms are prevented from moving upon one another,

THE BODY IS A SOLID;

but when the cohesion is much less, and while the atoms are still held together, the force is so weak that they freely move about upon one another, and the body has no form of its own, but takes that of surrounding bodies,

WE HAVE A LIQUID.

There are two forces; one tending to hold the particles together, an attractive force, *cohesion*, and besides this another, which tends to separate or drive them apart, a repulsive force, or *heat*. In ice, we have a solid body, in which the atoms are held firmly together; by means of a slight amount of heat, the cohesion between the particles is weakened, and it becomes water, or liquid, and with still more heat, the attraction of the atoms is quiteover-

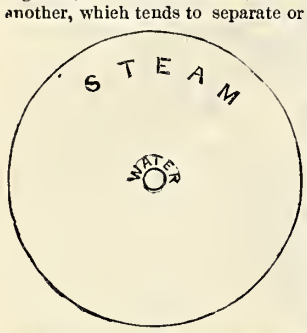


Fig. 2.—WATER AND STEAM.

come, and we have steam, an air-like or gaseous form, in which the atoms repel or fly off from one another. The difference in the space occupied by water in these two states, is seen in the diagram, figure 2. A cubic inch of water, when turned to steam, will occupy 1,700 times the space. But some of the peculiar and important effects of heat will be given in future talks. All that we wish to show now is, that heat is opposed to cohesion, and that nearly all forms of matter may be made to appear

AS SOLID, LIQUID, OR GAS,

by the use of that wonderful force known as heat. Cohesion is a force that acts at distances so small that we can not conceive how minute they are. If we break a piece of glass or steel, it makes no difference how firmly we may press the broken surfaces together, they will not cohere. If we take two bullets and eat away a piece from each (fig. 3), to leave a smooth bright surface, and then forcibly bring these surfaces together,

Fig. 3.

with a slight twist (fig. 4), they will cohere so firmly that you will find it very difficult to pull them apart. The lead being soft, it allows us to bring some of the particles near enough together for the cohesive force to act. If the cohesion between the particles of a body is readily overcome by a blow, and it breaks readily, we say that

IT IS BRITTLE; BRITTLENESS

then is a property of matter due to the strength of cohesion; glass, ice, and sugar, are examples of brittleness. If the force of cohesion allows the body to be bent in any direction without breaking—of which we have good illustrations in lead or India-rubber, we say that

IT HAS FLEXIBILITY,

which is another property of matter. If a substance can be beaten into another shape without breaking, as can be done with iron, gold, or still easier, lead, it is

SAID TO BE MALLEABLE,

a long word that comes from *Malleus*, the Latin for hammer. If by pulling at a substance, as in working candy, we can draw it out without breaking, we say that it is *ductile*. Wires are made from iron, copper, or other metals, by drawing them through holes in a steel plate; these holes are smaller and smaller, so that starting with a piece of iron the size and length of a lead-pencil, and drawing it each time through a smaller hole, the iron will appear as a wire as fine as a thread, and several hundred feet in length. The cohesion between the particles being weak enough to allow this change of form to take place, and yet strong enough to prevent breaking. All these properties—Flexibility, Malleability, Ductility, and Tenacity—are due to degrees of the force of cohesion,

Fig. 4.

and are only found in substances that are comparatively soft. Hardness is the opposite of softness, and we find that hard substances are brittle. Many bodies, when bent or pressed out of their usual shape, recover their form when left to themselves. This property

IS CALLED ELASTICITY,

and is the opposite of brittleness. A ball of ivory or glass when it falls upon a hard surface is thrown out of shape by the blow, but it at once recovers its shape, and in doing this rebounds; a piece of steel or of whalebone are other examples of elasticity. The ability to change the strength of cohesion between the particles of a metal, and make it hard or soft, is of the greatest importance. We do this, by the aid of heat, in the operations

OF ANNEALING AND TEMPERING.

If a piece of steel be heated red-hot, and then suddenly plunged into water, it will be very hard and brittle. If it be heated in the same manner and allowed to cool slowly, it will be soft and flexible, and have the other properties that accompany softness. A skillful worker in metals will, by a proper management of the heating and cooling, bring steel and other metals to the hardness or softness, required for various uses....The terms

COHESION AND ADHESION

do not mean exactly the same; *Cohesion* is the force that holds together particles of matter of the same kind. *Adhesion* is the force that holds particles of a different kind together. We can not make two pieces of wood or two bits of paper cohere; but if we put a thin film of glue between the pieces of wood, that adheres to each and holds both together. So we use mucilage or paste to make two pieces of paper adhere. Quicksilver will not adhere to the smooth surface of a plate, but the drops will roll about; while drops of water or of oil will adhere to the plate or *wet* it at once. The adhesion between a liquid and a solid—or between some liquids and some solids—is shown by placing a small glass tube in water, or other liquid that will adhere to, or wet the glass. If the tube, *a*, figure 5, is one-twelfth of an inch in diameter, and is placed in water, the liquid will rise in it a quarter of an inch; if the tube, *b*, has a bore only half that of *a*, the water will rise twice as high, or half an inch, and so on, the smaller the tube, the higher the liquid will rise. This adhesion between the liquid and the inner surface of the tube above illustrated is called

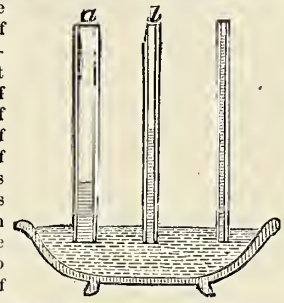


Fig. 5.—CAPILLARY TUBES.

CAPILLARY ATTRACTION.

The word *capillary* comes from the Latin *capillus*, a hair, as it is the strongest in very minute or *hair-like* tubes. It is a real force, able to overcome the attraction of gravitation, and raise the liquid a considerable distance above the surface of that in the dish. Because this was first noticed in small tubes, it keeps the name "capillary attraction," but it is exercised by flat surfaces,

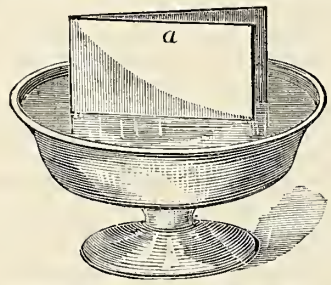


Fig. 6.—CAPILLARY PLATES.

and, but for the difficulty of changing names "surface attraction" would better describe it. You can try a

VERY PRETTY EXPERIMENT,

showing at once the force of capillary attraction, and the fact that it takes place with flat surfaces, by means of two pieces of window glass. Take two pieces of clean glass of the same size, and place them as shown in figure 6. They should quite touch at two edges, as seen at the left hand, and be a little apart at the other edges. By placing a small bit of stick to keep two edges open, and binding the pieces of glass together with a coarse thread or small twine, you will be able to keep them in place. In order to see the liquid plainly, it should be colored by adding a little ink. The glasses being set in a plate or other dish containing the colored water, the liquid will at once rise, as shown in the engraving, rising the highest where the surfaces are the nearest together, and lower where they are farther apart, and forming a beautiful curve. Capillary attraction is shown whenever a porous body is placed in a liquid that will wet it; thus if a lump of sugar placed in a spoon has its lower part merely touched to your coffee or tea, those liquids will rise at once, by capillary attraction, and wet the whole lump. We make

A FREQUENT USE OF THIS FORCE,

and though a small affair, its application has much to do with our daily—or rather nightly—comfort. In our lamps the oil is burned at a point, often some inches, above the part of the lamp that holds it; it is brought up to the place where it is burned, by the wick, and by capillary attraction. The cotton fibres of the wick present a great number of surfaces very close together, and the oil rises between these, just as it does through fine glass tubes, or between the plates of glass. But there are still other important applications of Capillary Attraction, which I must leave until another time.

## The Doctor's Correspondence.

"WHO IS UNCLE HAL?"

do you ask. He is of course "Uncle Hal," and we call him so, because he is an uncle, and his name is Hal. Though he has nephews and nieces, he is not an old fellow like myself—in fact, he is rather a young uncle, and not so very many years have passed since he was a farmer's boy, that he has forgotten how farmers' boys feel and act. In fact he is, as you will find out, up to all the ways of a boy's country life, and while I would not have you by any means forget the "Old Doctor," I want you to take kindly to the "Young Doctor," for he is a doctor as well as an uncle, and I am sure he will prove an excellent uncle to our many Boys and Girls.

THE SIZE OF CITIES.

"T. Z. S." writes from Conn. that she and another have a dispute as to the relative size of London (Eng.) and Yedo, or Jeddo (Japan), and that they have decided to leave the matter to me. I have a poor memory for figures, but in this case I can appeal to the authorities. The latest edition of Chamber's Encyclopædia (1877) says that the population of London was at the last census (1871) 3,251,804. As to the population of Yedo or Jeddo—it being written both ways—we have no census but only estimates. Its population has been stated at all the way from 1,500,000, to 3,000,000, and some writers think that even the lowest of these figures is too high. The probabilities are that London is much the largest, but here are the statements from the best source that I have at hand, and my young friends must "decide" for themselves.

CITIES ARE NOT SO LARGE

as a general thing as people suppose. I came across not long ago a carefully prepared article on population, in which it was stated that there were in the whole world only 215 cities with over 100,000 inhabitants; 29 with a half a million or more, and only nine containing over a million, and of these nine, four are in China. In the order of their population they stand: London, Paris, New York (including Brooklyn), Vienna, Berlin, Canton, and three other Chinese cities.

A STEAM WHISTLE PUTS OUT A FLAME.

A correspondent in Ohio writes that he has upon the boiler in his factory a steam whistle, and that this, when blown, will put out the lamp in a lantern placed 20 or 30 feet away from it. He writes to "The Doctor" to ask the reason why. If "H. L. L.," could *see* the air when the whistle was blowing, he would observe that it was thrown into waves, much as the surface of water is disturbed when a stone is dropped into it. But while the waves in the water move horizontally only, those in the air move in every direction. This disturbance of the air may be sufficient to put out the lamp, just as a very slight puff across the top of a lamp chimney will extinguish the flame. But there may be another cause. The lantern is surrounded by glass; that glass if struck will vibrate, and give off a sound; if the note of the whistle has the same pitch as that of the glass, the glass will vibrate when the whistle is sounded, and its vibration so disturb the air within the lantern as to put out the flame. To find out if this is the cause, try other lanterns under like conditions.

## Our Puzzle-Box.

NUMERICAL ENIGMAS.

1. I am composed of 19 letters:
   My 8, 9, 14, is a young animal.
   My 1, 6, 3, 4, is part of a house.
   My 7, 2, 11, 12, is a distance.
   My 13, 17, 16, is often a disagreeable answer.
   My 10, 5, 17, 15, is much to be dreaded.
   My 18, 12, 1, 19, is a reptile.
   My whole is the name of a celebrated poet. EMMA.
2. I am composed of 9 letters:
   My 6, 8, 7, 2, is a girl's name.
   My 5, 4, 1, 9, is the name of a college.
   My 7, 9, 4, is a kind of drink.
   My 6, 9, 1, is a fish.
   My 3, 6, 1, 7, is a thick fabric.
   My whole is the name of a well-known General.
   J. C. H.

PUZZLE WITHIN A PUZZLE.

Nhew ym dirht snaphep ot eb ym nodecs eh yam veah ym strif papdile ot mih; ym lowhe si a drib. HAUTBOY.

DIAMOND PUZZLE.

1. Part of a bowl. 2. A color. 3. Convenient. 4. To diminish. 5. A city. 6. Fractured and torn. 7. Heathen gods. 8. A number. 9. Part of a room.
The central letters, read across and downward, form a city. NIP.

CHARADE.

My first is a verb,
My second not jolly,
My whole is a poem—
One censuring folly. WILKS.

ACROSTIC.

1. One of the books of the Bible.
2. One of the circles of the globe.
3. One of the United States.
4. A country of Europe.
5. A continent of the eastern hemisphere.
6. A far northern country.
7. A city of the United States.
8. A kingdom of Europe.
9. A French word, meaning a jewel.
10. A large river of North America.
11. The capital of a Western State.
12. A town in Indiana.
13. A river on the border of the United States.

The initials form the name of a well-known Statesman.

O. L. RICE.

SYNCOPATIONS.

(Omit one letter from the original word—*e. g.*, syncopate a scow, and leave an animal. *Answer*—boat, bat.)

1. Syncopate a bird and leave a domestic animal.
2. Syncopate a vehicle and leave another domestic animal.
3. Syncopate an article of food and leave an ornament.
4. Syncopate another article of food and leave a household article.
5. Syncopate a measurer of time and leave a fowl.
6. Syncopate distress and leave a household utensil.
7. Syncopate a garment and leave a dwelling.
8. Syncopate a burden and leave a boy.
9. Syncopate a coin and leave a stamp.

ISOLA.

TRANSPOSITIONS.

(Fill the blanks in each sentence with the same word transposed—*e. g.*, Be——and——to the music. Fill the first blank with "silent," and transpose it to "listen," for the second blank.)

1. I always made him a——of my——.
2. Are you at the—— ——still?
3. That——will——our dresses.
4. I noticed her——as she——by.
5. We heard the——plainly as we crossed the——.

T. AYLOR.

AN ENIGMATICAL TEA-TABLE.

1. A man mentioned in the Bible.
2. What ladies dresses are sometimes made of, with the first letter changed.
3. A letter of the alphabet.
4. A mother and two boys.
5. Part of a wagon.
6. What invalids often have, and what they give the doctor.
7. What you often do for amusement, with a primary letter added.
8. An abbreviation of one of the United States, and some young ladies.
9. A tool and some wise men.
10. Two-thirds of what the sun sheds, and an important part of the tea-service.

CONCEALED TREES.

1. Johnnie, you are splashing that water around, terribly!
2. It is rather overwhelming, I must confess.
3. I thought I was doing it up in elegant style.
4. If I grow too demonstrative you must chide me.
5. It was the most popular church in the country.
6. The pastor is now ill in Denmark.
7. You will find Sam a pleasant companion.

PI.

A roalpup tewrir, askpegin fo het canoe lagphrete, redsnow therhew het snew own metitstrand hurthog bet tals treaw liwl cb shref.

ANSWERS TO PUZZLES IN THE JUNE NUMBER.

DROP-LETTER PUZZLE.—1. Myrmidon. 2. Judicature. 3. Haversack. 4. Serpentine. 5. Treacherous. 6. Frankincense.

PI.—Glycerine is a substance contained in the fat of animals, and also in some vegetable substances, from which it is separated by chemical processes.

NUMERICAL ENIGMAS.—1. Infelice. By Miss Augusta J. Evans. 2. Grieving for misfortunes is adding gall to wormwood.

ANAGRAMS.—1. Wearisome. 2. Disobedience. 3. Ejaculates. 4. Escapade. 5. Imprisonment. 6. Greediness. 7. Particular. 8. Chrysalis. 9. Indomitable. 10. Malevolent.

A METAGRAM PUZZLE.—The central word is "Prospect," from which may be made the various things illustrated around it—post, store, rose, top, props, rope, cot, and pot.

METAGRAM.—Town: from which may be made the words—ou, to, ton, two, won, no, not, own, tow, wot, now.

SCATTERED SQUARE.

F A R E
A R E A
R E A R
E A R S

CROSS-WORDS.—1. New York. 2. Macheelah.

EASY RHYMES.—Lad, elad, bad, dad, mad, sad, glad, brad, gad.

CHARADE.—Dogma.

Puzzles, answers, and such matters as were formerly directed to "Aunt Sue," may hereafter be sent to "The Doctor," No. 245 Broadway, New York.

## How to Collect Butterflies.

We have already had something about preserving butterflies, and now Mr. E. J. Smith, of Natick, Mass., sends his methods, which will be useful to those who wish to make specimens of the destructive or harmless species. He writes as follows: "To capture butterflies, I use a net made thus: take an iron or brass wire about $^3/_{16}$th inch in diameter, and bend it into a circle about one foot in diameter, and twist the ends together to form a handle about four inches long; this is to be inserted in a hole bored in the end of a stick, which should be from 4 to 6 ft. long. The net is of mosquito-netting, or muslin, about 2 ft. deep, and tapered to about 6 inches in diameter at the bottom. In capturing, the net is thrown over the insect, and by a turn of the wrist the bottom of the net is thrown across the mouth, thus closing it. Wait until the insect stops fluttering—which a butterfly will soon do,—resting with the wings closed over the back; grasp the insect under the wings, and pinch firmly, this paralyzes it so that it cannot fly, after which it may be taken in the hand and boxed. To kill insects I take a glass jar with screw top, and place in the bottom a lump of Cyanide of Potassium, as large as a filbert, pack a lot of paper over it to keep it in place, put in the

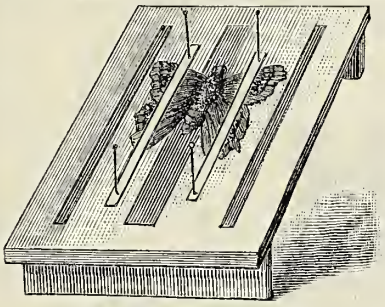


Fig. 1.—SETTING BOARD.

insects, and leave them from 15 to 30 minutes or more. [The Cyanide is used by photographers and others, and is sold by druggists in fragments looking somewhat like white marble. It is a most deadly poison, and should be used with a full knowledge of its dangerous qualities. When placed at the bottom of a jar and covered with paper, it will give off a deadly gas, and kill the insects placed within its reach. ED.] Chloroform and Ether are nuisances, and should not be used, as insects killed with either of these are so rigid that it is almost impossible to set them. I enclose rough sketches of my way of setting. I make my boards as follows: Take a pine board about one foot square, and $\frac{3}{8}$ inch think, cut grooves through it as shown in fig. 1. A strip of wood the length of the width of the board, and $1\frac{1}{2}$ inch wide, is nailed edgewise, across the grain of the board, and about half an inch from the edge, to form legs, and also to prevent the board from warping. A sectional side view of one of these setting boards is shown in fig. 2. On the underside, over the grooves tack strips of cork to receive the pins which should be stuck down through the cork so that about $\frac{1}{4}$ of an inch of the pin projects above the insect. Having pinned the insect in the groove, spread the wings by means of "setting needles," (which are common stout needles forced eye foremost into slender pine handles), and place strips of cardboard or other smooth paper over the wings, and confine by pins as shown in the engraving, giving the wings the proper position with the setting needles. On large specimens another, and wider, strip should be placed over the wings to keep them from curling in drying. *All* specimens should remain on the boards at least a week, and large ones from 2 to 4 weeks or even more. If removed too soon, the wings will sag, or warp. Young collectors should especially bear in mind NEVER to touch a butterfly's wings with the fingers, but in handling always take them by the thorax, under the wings. I think the use of threads over the wings, as mentioned by your correspondent, would be likely to rub or deface the insect, besides they would not hold so smoothly as paper. Pins should never be stuck through the wings, as they deface the specimen. I keep my set-

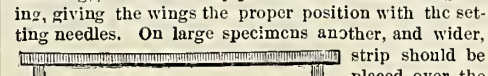


Fig. 2.—SETTING BOARD, SIDE VIEW.

**No. 469. Illustrated Rebus.**—An old saying, or at least a part of one, that we often hear.

ting boards in a "drying case," (fig. 3), which is a case with a frame door covered with wire gauze to exclude insects, and admit air. The boards are placed one above another, like shelves, strips of wood being nailed to the sides of the case to support them, as shown in the engraving. After insects are dry, they should be placed in air-tight boxes with glass covers, and a small piece of a sponge kept wet with creosote should be placed in each box to keep out destructive insects, which would otherwise injure them. Camphor should not be used for this purpose, as it is injurious to the specimens. A case of shallow drawers, about two inches deep, and made to take 12×16 inch glass, is very good, to keep insects in. Butterflies should be kept in the dark, as light injures them. Butterflies intended for exchange with other collectors should not be set, but dried with closed wings, and placed in small paper envelopes. They may be set at any time by placing the envelopes in a dish of damp sand, covered air tight, and allowed to remain for two or three days. Insect-pins may be purchased of taxidermists and others for about $1.25 per thousand, and are vastly better than common pins for all insects.

N. B. CAUTION.—All our talk about catching and preserving butterflies and other insects has heretofore appeared in the Boys and Girls' Columns, for the reason that the questions concerning them have come from the older boys and girls. Some do not like the idea of encouraging children to take life. But it must be remember-

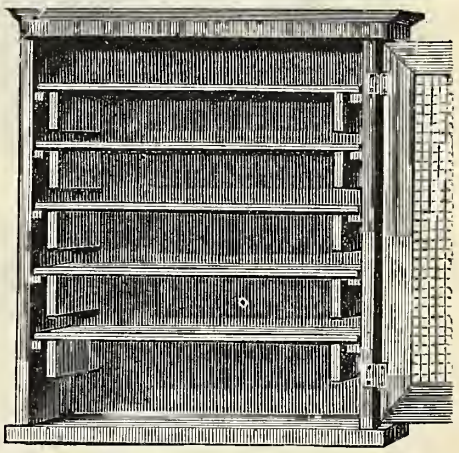


Fig. 3.—DRYING CASE.

ed that the most beautiful butterflies and moths are, in their caterpillar state, exceedingly destructive to plants; besides this, they naturally live but a few days, and then die a lingering death with broken and torn wings, and if we can give them a sudden and painless death, there is no cruelty exercised. But our trouble with this article is, that it advises the use of *Cyanide of Potassium*, which is a *very dangerous poison*. If a lump of it be placed in the bottom of a jar or wide-mouthed bottle, and *kept there*, well covered with paper pressed down over it, no harm can come of it. The vapor it gives off kills the insects. The article should not be handled, or removed in any manner, but kept for this purpose alone with the full knowledge that it is poisonous. So we say to every boy and girl disposed to try it, show this article to your parents, and if they approve, all right. If they say "No"—let that settle it. But first be sure and ask your parents.

## The Trapper Caught.

Last month I gave you some of my experience in trapping woodchucks, which resulted, as you may recollect, in an outgo of some of the traps with which the woodchucks had nothing to do. Not to be discouraged by anything so trivial as a failure, I turned my attention the next season towards another race of animals which abounded in our neighborhood, and, like the woodchuck, was also a nuisance, though not so great a one as the woodchuck, and withal a wild *beast* of more gentle habits, less knowing in those things which oppose the success of the youthful hunter, and therefore the easier to be led into a trap. These tender creatures—of course, I am talking about *hares*, but as every one in the country calls them rabbits, I shall be obliged, in order to be understood, to say "rabbits" too—but, nevertheless, they are hares.—Well, these animals, which as far as their ears go (and they go a good ways sometimes), are rivals of a much larger and *sterner* animal, often used as a beast of burden and more noted for the lightness and activity of its hind legs, upon the least provocation, than for the highest type of wisdom. Some people, who are more *otherwise* than *wise*, claim that there is a jealousy between rabbits and mules, but this I do not believe, because all this about the subject of *ears* is pure and simple *hearsay*. However gentle and timid the rabbit may be, they have teeth and know how to use them, especially upon young trees. The orchards had been badly injured the winter before, and this trouble must be stopped. The word had

"I'LL HAVE HIM."

gone forth, catch them, in early winter when they are fat—if you can, but catch them at any time. For the capture of these enemies I brought into use all the boxes that I could find, that were large enough to hold my prey and not too large to carry to the rabbit bank near the orchard. Saleratus and soap boxes were the first choice. I then prepared a number of "figure fours," which I will take it for granted you have both seen, and know how to make and set. If you don't know, ask your big brother, and if he doesn't know—well! he ought to.

I was not the only boy in our neighborhood that had made up his mind to go into the rabbit business—such things are *catching*. Harry Culver, our next neighbor's boy, had prepared for trapping in much the same way as myself, and located his traps (as our orchards joined, with only a fence between) but a short distance from the place where mine were set. Young Culver did not inherit the best disposition in the world, and in the opinion of some was said to have a bad eye. I visited my traps every morning regularly, with no success. The

Fig. 1.—"BEAUTY."

rabbits had evidently been about, as I could see their tracks. Harry would frequently have game for his trouble, as he would boastingly tell me when I would meet him on the way to town—but not a hair (hare) for me. Things did not look just right, and, if I must confess it, I began to grow suspicious. Harry always visited his traps the first thing in the morning, while I was driving in the cows, and doing the other chores, leaving the private enterprise until after breakfast, and while I was taking the cows to the back pasture. I had often been told that "the early bird catches the worm," and I began to think the early boy's trap catches the rabbit, so I concluded to make an early call upon my soap boxes and "figure-fours," and if not "healthier and wealthier," I might be, perhaps, "wiser" than in the past. That I did not herald my coming with shouts may be presumed. Proceeding quietly and cautiously, and taking advantage of every clump of bushes or other shelter, I approached and made a brief survey of the field. I was *certain* that young Culver was ahead of me, that he was kneeling before one of my traps, and was in the very act of removing a real live rabbit! You may imagine how I felt. He was a much larger boy than I, and to rush upon him would be only throwing myself into his hands for a sound thrashing. I felt in my pockets, as every boy will in cases of emergency, and found there, among a multitude of weighty and important things, a small but very stout cord which had been used in tying up a calf. I could see that Master Harry was entirely absorbed in his business, and besides his legs were astride a young tree, and free from the ground, as he was resting on his knees and tip-toes. "I'll have him," I said to myself, and quietly made the most of the precious moments. The artist has given you perhaps the most absorbing scene in this drama of "Catching and Getting Caught"—but as it was not taken by a photographer on the spot, there are certain minor points that are not as life-like as they might have been. For example, justice is not done to Culver's nose; it was even sharper than represented. Whatever I say of that boy, I must give him credit for being sharp—some called him a sharp*er*. Well! you may ask what did I do with the young thief. Nothing rash, I assure you. There was too much of a joke to it for Harry to get mad, and as for my part, I had no great desire to punish the poor fellow farther. He not only acknowledged that he was caught, and according to the trappers' laws, was at my disposal; but before releasing him I put several questions to the culprit, which bore upon my previous poor success in securing rabbits, which resulted in his telling me that two-thirds of all the rabbit skins he had belonged by right of capture to me. If I would say nothing about his dishonesty and detection he would bring me my proper share of the month's returns. To this I consented, provided he would just return with the skins, the steel traps which I lost the year before. The whole matter was arranged in a manner satisfactory to me. I gained a warm and trusty friend instead of making an enemy, and until this day no other person has known the experience of that early morning call—not even the folks at home, who wondered why I was gone so long—except those who were the chief and the only actors in a drama which might be entitled "How the Trapper was Caught at his Own Game." But it was not at his own *game* altogether; it was my rabbit, and I took it home as my first "catch." I give this story to the boys and girls of the *American Agriculturist* only with the consent of Mr. Harry Culver, who is now a wholesale hide dealer near—UNCLE HAL.

## Hats for our Horses.

Probably every, or nearly every, one of you boys and girls, who live upon the farm, has seen a hat upon a horse. Perhaps you who read this have put your own hat upon old Dobbin's head, just for the fun of seeing how queer the old horse would look; or it may be that your sister has placed her bonnet on the head of a favorite colt, and witnessed a comical sight, and, at last, perhaps, the colt wishing to have his share of the fun, her charming and much prized bonnet has been the worse for the trial. In the accompanying engravings we show the heads of two city horses provided with hats; these are very different in every way, but appropriate to their respective wearers. What a fine head the first one is, we only wish we could have given space to show the whole animal. How pleasantness and pride mingle in every part of the face and neck! How well the light airy hat becomes its wearer. If you were used to city ways you would know that this horse is one of the sleek, well kept and well groomed animals belonging either to one of the express companies, or to the dray-man of some large business house, as it is among these—aside from the carriage horses of the wealthy—that we find the best cared for animals. The driver is proud of his horses, and decorates them in various ways, while the horses appear to enjoy it, and proudly look down upon the poor drudges engaged in common work.

In the second picture we see a good old worker, who has seen many days of hard service--a horse to be honored for the work he has done; if we cannot admire him for a smooth coat, agile limbs, and a display of high life and style, which his counterpart possesses. His hat becomes him also, and he probably thinks as much of it as if it was made of the gayest colors, and in the latest fashion. Suppose that, in imagination, you just change the hats, and slip the old weather-beaten straw hat on "Beauty's" head, and fasten the elaborate red, white, and blue head-gear over "Old John's" ears, and see how you like the change. There is a "fitness of things" even in hats for horses, and we think our artist made very good selections from the thousands of forms to be seen every day in the large city of New York. Old John may be seen every day at the markets, and is not the only cart-horse that is provided with a hat. Beauty is one of the many gay horses which look so proud and step so high as they dash along on Broadway with the gaily painted and gilded express wagons and grocers' vehicles.

We have a purpose in giving these illustrations to our family of boys and girls. You know how much more comfortable it is to have a good broad-brimmed hat on your own head, on a hot sunny day in August, than it is to stand bare-headed in the burning sun. Horses are creatures of feeling, much like ourselves, and deserve anything which will add to their comfort while doing our hard work. It is a very humane act to provide horses with some sort of a sun-shade for their heads, and every boy or girl old enough to know the blessings of shade in summer, should see to it that neither "Fred," "Fan," "Charley," nor other horse of theirs goes to work in the hot, shadeless field without some sort of a hat to wear. It is now known that many of the troubles of horses

Fig. 2.—"OLD JOHN."

come from the beating of the hot sun directly upon their heads, and some go so far as to provide, besides the shade, a wet sponge upon the head to keep it cool. But a simple shade will answer; a piece of strong paper will serve as long as it lasts, but it is better to make a more durable one of cotton cloth. The girls may make them as fanciful and elaborate as they please, but provide something; the horse deserves it; and all hands will profit by this thoughtful consideration of the comforts and health of the most useful and appreciative of animals.

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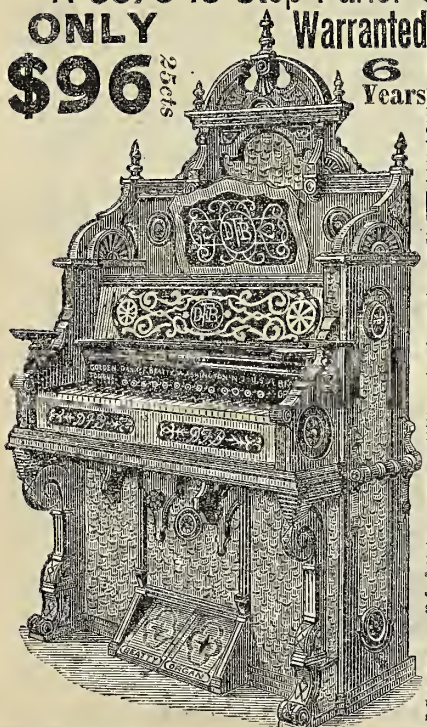

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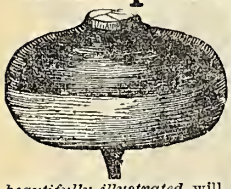

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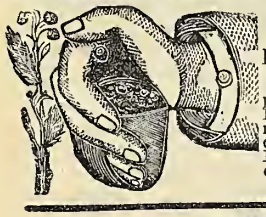

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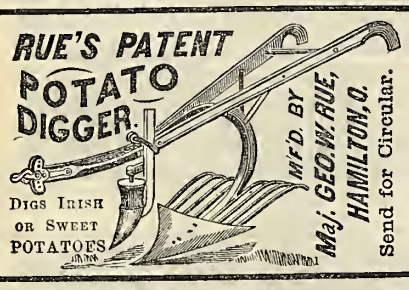


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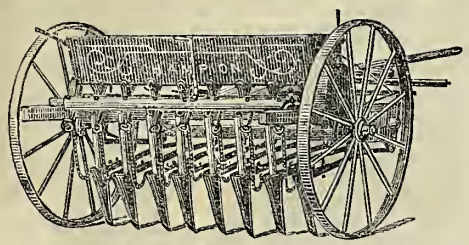

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It has a **perfect force feed** Grain Distributor that will sow accurately all kinds of grain without the least injury to the seed.

**UNEQUALED AS A CORN PLANTER.**

Fertilizer attachment **can be relied upon** to sow all kinds of commercial manures whether dry or damp in any desired quantity.

**Draft Light, Construction Simple, but durable.**

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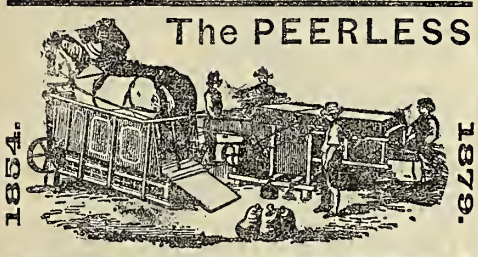

**Thresher and Cleaner—Clover Huller and Cleaner—Straw-Preserving Rye Threshers—Railway and Lever Powers—The Howland Feed Mill—Grain Fans and Corn Shellers.** Our machines are guaranteed to work well, and have received the highest testimonials and cannot be excelled.

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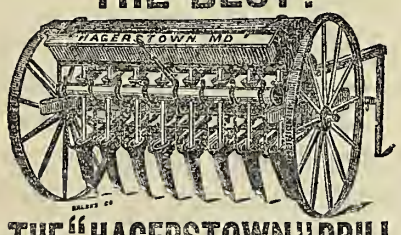


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**Most successful** Grain-Drill in use. Can change quantities of seed *while in motion.* Strong, durable, and simple, with Pin or Gum Spring Hoe and Grass Seed Sower. ☞ **Standard Fertilizing Drill.**

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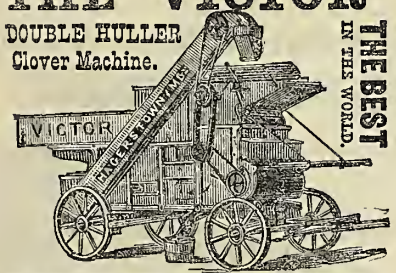


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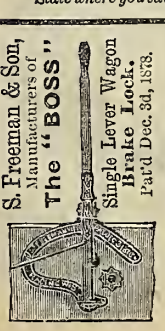

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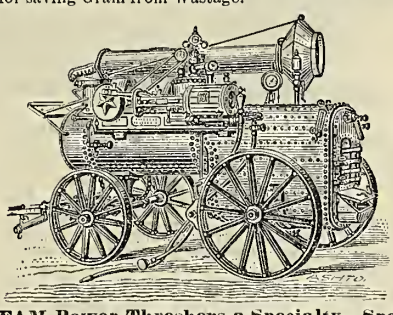

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**OUR Unrivaled Steam Thresher Engines,** both Portable and Traction, with Valuable Improvements, far beyond any other make or kind.

**THE ENTIRE Threshing Expenses (and often** three to five times that amount) can be made by the Extra Grain SAVED by these Improved Machines.

**GRAIN Raisers will not submit to the enor-**mous wastage of Grain and the inferior work done by all other machines, when once posted on the difference.

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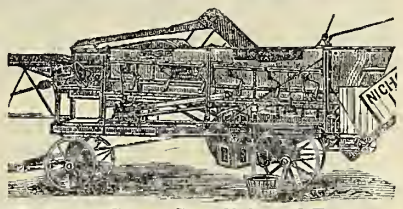

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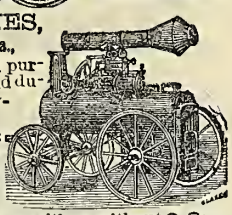

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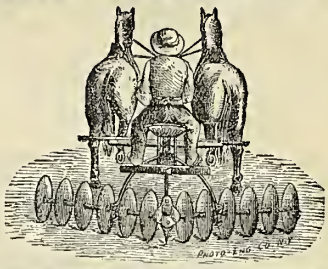
Light, Simple, Durable & Flexible.



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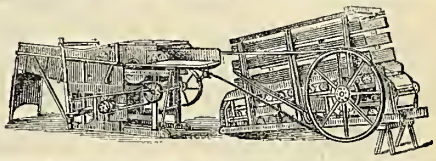

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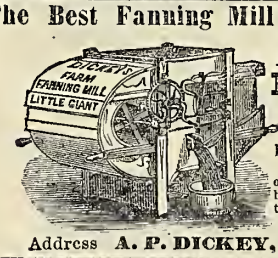


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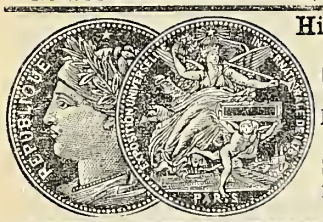

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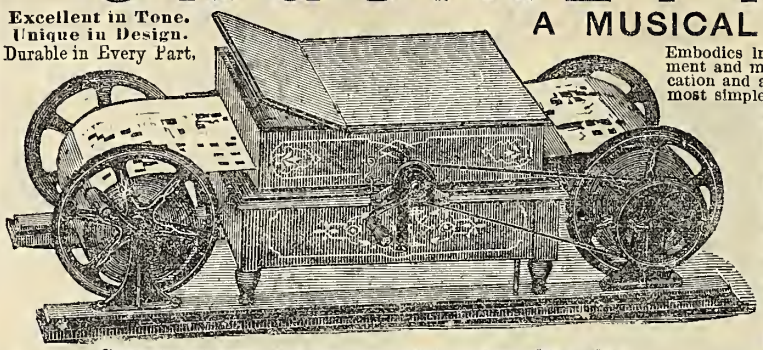

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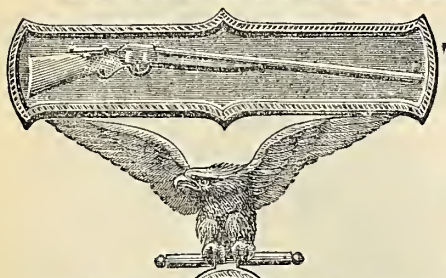

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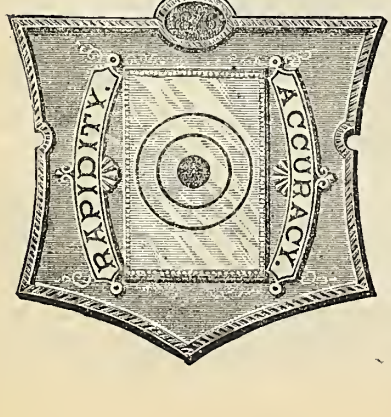


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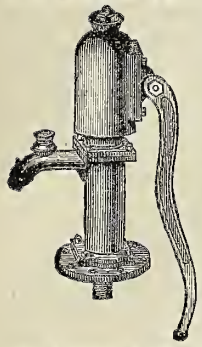

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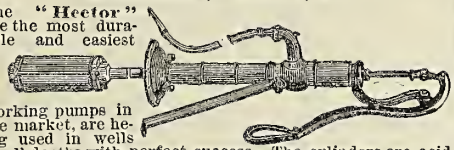

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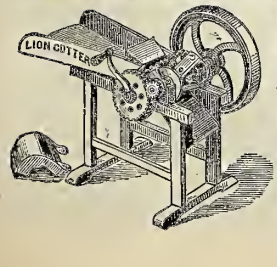


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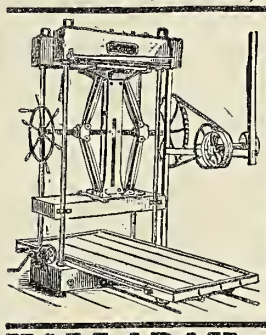

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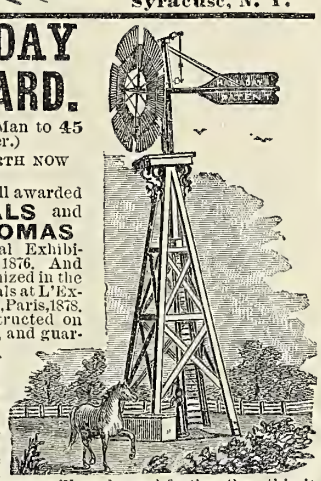

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*containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.*

Continued from Page 294.

**In justice to the majority of our subscribers, who have been readers for many years, articles and illustrations are seldom repeated, as those who desire information on a particular subject can cheaply obtain one or more of the back numbers containing what is wanted.**

**Back numbers of the "American Agriculturist," containing articles referred to in the "Basket" or elsewhere, can always be supplied and sent post-paid for 15 cts. each, or $1.50 per volume.**

**"The Vanilla Tree."**—England has of late been much excited, over a letter to "The Times," in which the writer praises the "Vanilla Tree," as planted in the avenues of Paris. Some one guessed that the tree must be the Catalpa, from some resemblance in the shape of its pods to Vanilla beans, but the "Vanilla Tree" of this Times correspondent, turns out to be the *Paulownia*, which has nothing in common with Vanilla.

**The "Moss Pink."**—One or our best, native, early-flowering plants, *Phlox subulata*, has rewarded an English gardener, Mr. Nelson, who has raised it from seed, a number of varieties as to color. "The Garden" says, "It would be interesting to know if there are many varieties where the plant is common in America; if not, our American friends will have to come to us for these." Of course we do not know the extent of the variation obtained by Mr. Nelson, but we have this charming plant, in the purest white, deepest rose color, with numerous intermediate shades, and all excellent.

**Steam in Lumbering.**—According to the "Pacific Rural Press," an English machine, called "Ransome's Patent Steam Tree-feller and Log Cross-cut Saw," has been introduced upon the Pacific Coast. Our esteemed contemporary, while it reproduces an English engraving, showing the method of its operation, does not state that it has yet been tested upon the trees of California, where such a machine, if practicable, would be especially useful. It operates upon much the same principle that drills are worked in mines in so far as the power generated at a distance is conveyed to a separate machine stationed where the work is to be done. A large saw is used in felling; this is attached to a small portable engine, to which steam is conveyed from a distant portable boiler through a flexible pipe. The forests of California are well calculated to test the value of such a device, and we doubt not that the "Rural Press" will in due time give an account of its working.

**"Root" of Grass.**—J. W. Campbell, Ridgeway, N. C. The "root" sent by mail, more properly a *root-stock*, or *rhizome*, was very dry and dead when it came to hand. We think it was probably the root-stock of Guinea-grass, *Sorghum halepense*, but not feeling sure we wrote, asking for a specimen to be sent so packed that it would reach us alive, that we might grow the grass and learn exactly what it is. The letter, dated May 24th, was sent to the above address; on June 27th it came back "to writer," the person addressed not being found.

**Noel Humphreys,** an artist whose work is familiar to readers of English illustrated books, died in London on June 10th, at the age of 72. He was connected with horticulture through his numerous drawings of plants, which he executed with unsurpassed grace.

**The Nettle as a Fibre Plant.**—The common Stinging Nettle, was known to the ancient Egyptians as a fibre-producing plant, and is utilized as such at present in several countries of Northern Europe. Of late the plant has been investigated by a Commission appointed by the German Minister of Agriculture—and its report is noticed by the European journals. The experiments with the plant show that the Nettle produces a fibre quite equal to any other for textile purposes, yarns, ropes, paper making, etc. It is stated that a paper mill has been established in East Prussia for making paper entirely from the Nettle. It is expected that this report will lead to the cultivation of the Nettle on a large scale, and that extensive tracts have already been marked out for this purpose. The plant in question is the common Stinging Nettle of Europe, *Ur-*

*tica dioica*, which is naturalized in this country, especially in the older States, where it is found along road sides and in waste places—a plant which the old herbalist, Culpepper, said could be "found by feeling in the darkest night." In the wild state it is only two or three ft. high, but in rich soil it will reach 6 to 10 feet. It is a perennial, and a plantation, with manuring every two years, is said to be productive for 12 to 15 years....It should not be forgotten that, at the time of the Ramie excitement, our friend, Sam'l Miller, then of Bluffton, Mo., suggested that our native Wood-Nettle (formerly *Urtica Canadensis*, but now) *Laportea Canadensis*, would yield quite as good a fibre as Ramie, and he sent seeds to all who wished to try it. Had not Mr. Miller, after his nature, been free-handed with the seeds, but charged $1 for 10 seeds, we should probably have heard of the results.

**The Death of Doct. Moore.**—Death has been busy among European horticulturists during the present year, and now the name of Doctor David Moore, the well known Curator of the Botanic Garden of the Royal Dublin Society at Glasnevin, is added to the already long list. Doct. Moore is mentioned as a model Curator, and his name has long been prominently connected with important botanical and horticultural work. He introduced many new plants, and has of late been noted for his success in hybridizing the Sarracenias—our native Pitcher Plants, which, in his hands, gave interesting results. The "Gardeners' Chronicle," in its issue for June 14th, gives a likeness of Doct. Moore, which is a model of excellence in the way of a portrait upon wood.

**Catfish Spawn.**—A subscriber inquires for the spawn of Catfish, evidently supposing it can be transported for stocking new waters in that condition. We are not aware that the spawn of Catfish has ever been taken by pisciculturists. Their attention has been directed, very properly, mainly to the propogation of fish of the best quality, and of greatest commercial importance—the various members of the Salmon family and the Shad. The Catfish is of inferior quality, and hardly worth cultivating where anything better is within reach. The *Grystes nigricans*, the Northern Black Bass, and the *Grystes salmoides*, or Southern Black Bass, are much better fish, and the latter flourish in many of the Southern and Western rivers, where Catfish are found. It is not difficult to transport them alive for several hundred miles, and it is by this method that new waters are generally stocked. They are both game fish, and it will pay to plant both of these species in suitable waters.

**Squash Jam.**—It is very amusing to find the English horticultural journals discussing the question of jam from the Vegetable Marrow, which is, in England, a poor substitute for our squashes. One writer says, that for the production of jam, "the Vegetable Marrow stands unrivalled....The white-fleshed marrow, naturally produces the palest jam, but the flesh of the darker kinds, especially that of the Ohio squash, [whatever that may be], not only produces the richest color in the preserve, but also the best flavor." The same writer adds, "much depends upon the making."—A remark that applies equally to stone soup. We have known preserves to be made from tomatoes and sugar, and have even seen people eat them, as if they liked them—but squash jam!

**"American Jute."**—"V. C. R.," Meudon, Ill., writes that the article in the July number on "American Jute," is "interesting, and queer reading for this part of the country." He states that the plant, *Abutilon Avicennæ*, Indian Mallow, or Velvet Leaf, is one of the worst weeds in this part of the State, and that it frequently grows 10 feet or more in hight. That when a field is once seeded with it, there is scarcely a possibility of killing it out, some thinking that the seed will remain in the ground 10 or 15 years, and germinate when the land is broken up again. We suppose that the "queerness" of the article, is in the idea, that a plant, such a pest with him, should be elsewhere encouraged. As the fibre is in perfection before the seed is formed, the fact that it may be a troublesome weed, will not stand in the way of its cultivation, should it be found profitable.

**The "Tribune" and the Ailanthus.**—The New York Daily "Tribune," in common with other city papers, has had its annual denunciation of the *Ailanthus* as a street tree. It sets forth in language strong and truthful the fact that the most unpleasant odor of the flowers quite unfits it to be planted near dwellings. It says "everybody knows it as a street tree, where it is a nuisance unmitigated save by the single fact that it does not harbor worms or insects, because no self-respecting worm can be induced to approach it." The truth of this assertion rests upon the self-respecting character of the insect, or "worm." We never knew entomologists, who are supposed to know insects morally as well as structurally, to charge *Saturnia Cynthia* with any want of "self-respect," yet that has such a decided preference for the Ailanthus leaves over all other food that it has received for this reason, the popular name of "Ailanthus Silk-worm." This insect, by the way, has become quite naturalized in parts of Brooklyn, and in some streets the trees are, or were a few years ago, a greater nuisance on account of the "worms" they harbored than for their odor. Besides, other insects *do* feed upon the Ailanthus. It is one of the curious facts concerning the daily paper, that it can not write about plants without making some ridiculous blunder. The "Tribune" is not alone in this respect, but its comicalities in this line are all the more conspicuous for the reason that it asserts itself as a farmer's paper.

**Pocket Gophers.**—Our notes on Gophers last month, have called out the experience of several, who have successfully destroyed them. The use of Strychnine, which we have mentioned many times during the past 15 years, still seems to be the chief reliance. The method of administering it, as given by "J. O. M.," Sauk Centre, Minn., will serve as a sample of several notes of the same purport. He says: "Take a small potato, and insert a grain of the poison in each end, place it in their underground path, leaving a small opening, to let in the light. The Gopher will come to fill up the hole, and stop the light, find the potato, and that ends him.....For ground squirrels, I soak corn, open the "chit" with the point of a small knife-blade, insert a grain of Strychnine in each kernel, and scatter the corn in the front door of their habitations. By 'grain,' of Strychnine, I mean a very small quantity indeed." Of course so deadly a poison as Strychnine, should be kept where no accident may happen from carlessness. In new countries it is so freely used, to poison wolves, and is sold for that purpose, in the smallest country stores, that it is a wonder that no more accidents occur. Perhaps its most intense bitterness is a safe-guard against this dreadful poison.

**Carrying the Head to One Side.**—"H. J. R.," Rockland Co., N. Y. A colt that carries the head to one side may be trained aright by fastening a thin, light, stiff hickory rod to the collar and to the ring of the bridle when driving. A check-rein fastened tightly on the opposite side would prevent the habit.

**Fruit as Food.**—The liberal use of the various fruits as food is conducive to good health. Fruit is not a solid and lasting aliment like beef and bread, as it is composed largely of water, and contains very little nitrogen. It does not give strength, to any great extent, and can not be used for a very long time alone. But fruits contain those acids which both refresh, and give tone to the system during the season when it is most needed; are agreeable to the palate, and valuable in their cooling and health-giving effects. During warm weather eat a plenty of fruit, provided, of course, that it is always thoroughly ripe and as freshly gathered as is possible.

**Horse Gnawing a Manger.**—"H. G. B." writes that he completely cured a horse of the habit of gnawing the manger and halter straps by saturating the woodwork and straps with kerosene oil. One thorough application produced a permanent cure.

**Insuring a Good Crop.**—"T. B. P.," Goldsboro, N. C. If we, or any other persons, could "give a plan that would insure good crops on poor, hard land," it would leave nothing to be desired in the way of accumulating a fortune. But the method has not yet been discovered, and is hardly likely to be at present. Perhaps the best plan under the circumstances would be to plow and harrow thoroughly, to get the soil in good tilth, and kill all the weeds possible, and sow the crop with what fertilizer can be afforded. If one can not get all that he wishes for, he must be content with the best he can get.

**Holding for Higher Prices.**—"H. M.," Halstead, Kans. It will be found that to sell one's products of whatever kind, so soon as they are ready for market, is the best in the long run. To hold for higher prices is to speculate; and in the majority of cases, to speculate is to lose. If the price is not satisfactory, one may hold his property, but as soon as products are ready for sale, and they are not sold, losses of various kinds begin to occur, and wool is subject to damage and loss as well as grain. If stored in a very dry time, it loses weight and depreciates in quality, and this should be considered. There does not seem to be any prospect of an excited recovery of business; after so long a depression, things will probably move slowly, and the slower the surer, perhaps.

**Spring Wheat in Indiana.**—"D. L. E.," Shelby Co., Ind. Shelby Co., Ind., is not a spring wheat section. In 1870, about 700,000 bushels of winter wheat were grown in that country, and not a bushel of spring wheat. It is not safe or wise to act in opposition to the general practice of any locality. Customs are fixed as the results of experience, and in growing wheat, the conditions of the climate fix the boundaries of profitable culture of the two varieties, spring and winter wheat. Spring wheat needs a cool season; winter wheat needs a moderate winter, and will stand hot spring weather which would destroy spring wheat.

**Plowing by Electricity.**—This is the latest, but it has been done with perfect success in Sermaize, a three horse-power machine being used.

**Trouble with Butter.**—"Mrs. M." It is unusual to have trouble with the churning when cows are turned to grass; generally it is the reverse, and the butter comes sooner. Blue-Grass, called June-Grass in some places, makes excellent butter, and is considered superior pasturage, when young; when old and dry, it is perhaps the poorest grass for milk, and it may be that your Blue-Grass has passed its best stage, and has become dry and woody. A small quantity of green corn-fodder given daily might remove the difficulty.

**The Charleston Phosphates** are found in a great geological basin, which extends over many hundreds of thousands of acres, and the supply is practically inexhaustible. When treated with Sulphuric Acid, it gives about 12 per cent of the Superphosphate of Lime. Nearly two-thirds of the 200,000 tons annually "mined," goes to England.

**Tethers for Cows.**—We are asked which is the best Tether, and refer our inquirer to the one described and figured in the August number, page 298, of the *American Agriculturist* for 1878.

**The Changes of the Season** are the most critical times with animals, because important changes are then made in their food and consequently in their nutrition. This affects the entire system, and the more easily animals are let down from one kind of feeding to another, and the more nearly an even balance is kept, the more healthy they will be. Good feed one day or season, and poor feed another, and frequent irregularities, cause many of the diseases of cattle.

**Beet Sugar.**—France produced last season over eight hundred million pounds of beet sugar. They have over 500 successful manufactories. There would seem to be no reason why we can not compete with the old world in this industry, except the higher cost of our labor.

**Live Stock.**—Stock that has been running upon the pastures, usually require but little extra attention up to this time. Now that the pastures are becoming dry and hard, it is well to supply the animals with some extra food. But two months more come between summer and what may be considered winter as regards foddering. It is time now to consider what should be done to bring the stock into good order for the winter, remembering that to go into winter quarters in good condition is conducive to thrift all through the coming season.

**Phylloxera and Black Rot.**—Professor C. V. Riley, who has given a great deal of attention to this subject, is confident that there is no relation of cause or effect between these two serious troubles of the grape. 1st, the Black Rot does not accompany, nor follow the Phylloxera in Europe. 2nd, in many cases those least affected by the Phylloxera suffer most from the Rot.

**The Floating Apiary** of Mr. Perrine's, so much talked of last year, was in reality a failure, and the enterprise is abandoned. So many bees left the hives and never returned, that a floating apiary does not succeed.

**Pleuro-Pneumonia** has diminished greatly in those European countries where inoculation for it has been introduced. We may soon see this terrible cattle disease successfully treated by this method, as the dreaded small pox is now in the human subject by vaccination.

**Seventeen-Year Locust.**—This destructive insect is making its appearance in Missouri. The perfect insect lives but a short time, depositing its eggs in the branches of the orchard trees and nursery stock. The mutilation of the branches, caused by the female insect, injures them and causes them to break off.

**Overhanging Trees.**—There are sometimes unpleasant feelings arising from fruit trees standing near and overhanging the boundary lines. In such cases the law is that the tree and its fruit belongs wholly to the one on whose land the trunk stands, and he has a right to pick his fruit from his neighbor's side. If "on the line," the tree and fruit are to be equally divided.

**Jersey and Alderney.**—"J. A. R.," Delaware, Ohio. The Jerseys are frequently called Alderneys, but this is wrong, as the two breeds are distinct. These are both rich butter makers, but the Jerseys are larger and more valuable than the Alderneys. The Jerseys, as a breed, are the best butter makers in existence, although now and then a cow of another breed may excel them.

## New Books.

"The Ferns of North America."—Ferns are so strikingly unlike other plants that they are recognized at once, while their grace of habit and general delicacy of structure are quite sure to arrest the attention of lovers of the beautiful who find sufficient in them to admire without any reference to their botanical characters. On the other hand, botanists find in ferns objects of great scientific interest, and devote themselves to the study of their minute structure, and their wonderful methods of propagation, with great zeal. We have thus two distinct classes of fern lovers, the one, so to speak, *artistic*, and the other *scientific*. The first class show their admiration of ferns by cultivating them; by drying them under pressure—and no class of plants when thus treated hold, when dead, so much of the beauty for which they were admired when alive—and by using them as models for various kinds of decorative work in drawing, painting, wood-carving, etc.—in fact, the dried ferns themselves are often made useful in decoration. An intelligent fern-lover of this class, will naturally wish, among a multitude of the most graceful natural forms, to be able to distinguish them by names. If supplied with thoroughly accurate drawings, such persons can, as a general thing, ascertain the name belonging to a particular form. On the other hand, those who study ferns botanically find that the characters used in describing them are very minute, and sometimes obscure, and that carefully made, and if need be magnified, drawings of the parts are of great service in determining the genus and species. Accurate and life-like drawings of ferns then, are useful to all who have to do with these plants, whether as objects of science or objects of beauty. These are given in "The Ferns of North America," a work which combines in its engravings (drawn by J. H. Emerton and C. E. Faxon) the highest scientific accuracy with great artistic beauty, and meeting the wants of both the scientific and unscientific may be regarded as the standard work upon Ferns. We have only alluded to the work as to its engravings. The author of the work is Prof. Daniel C. Eaton, of Yale College. As Prof. Eaton is easily the first authority upon ferns in the country, and eminent among the authorities on these plants in the world, the scientific accuracy of the engravings is assured. While these engravings are of great value to fern-students, these will value not less the text, describing the species, and giving their popular history. Those who care nothing for the botanical description, will find in the text much to interest them concerning the discovery, localities, and other points of interest concerning each species. To botanists it is not necessary for us to commend a work by Prof. Eaton, and to such we may say that besides the *Filices* proper, the work includes the *Ophioglossaceæ*, and that the synonymy, as might be expected, is especially full.

In stating that Prof. Eaton's name is an endorsement of the scientific accuracy of the engravings, we would give full credit to the artists whose ability enables him to do this; Messrs. Emerton & Faxon are to be congratulated upon having produced a series of drawings, which, while satisfying botanical accuracy, so embellish the work that it may be prized by lovers of beautiful books. This valuable work, issued in two volumes, is supplied by the Orange Judd Company. Price of each volume, $15.00, post paid.

The Pacific Rural Hand-Book, by Charles H. Shinn; published by Dewey & Co., San Francisco, Cal. This contains a series of essays on Tree Culture, Vegetable and Flower Gardening, etc. The author is well known as a practical horticulturist, and a work especially adapted to their peculiar climate must be especially welcome to all cultivators upon the Pacific Coast. The title above given indicates both that it is a "Rural Hand-book," and that it is issued by the publishers of our excellent contemporary, the "Pacific Rural," who send it post-paid for $1.

Cameron's Plasterer's Manual, by K. Cameron; New York: Bicknell & Comstock. A neat little hand-book of 54 pages, giving descriptions of all the materials used in plastering, engravings of the various tools employed, and practical directions for the various operations of the plasterer's trade. Price 75c.

The School Garden.—Translated by Mrs. Horace Mann, from the German of Prof. Erasmus Schwab, of Vienna. New York, M. L. Holbrook & Co. The idea of attaching a garden to a school is a pleasing one; how far it may be practicable with any but a very small school is a question. This work will excite an interest in this direction, and if it only converts the present desolate school-yards and surroundings into something more attractive, it will be of great service. Price 50c.

Bee Culture; or, Successful Management of the Apiary, by Thomas G. Newman; Chicago: Thomas G. Newman & Son. A neat and abundantly illustrated little hand-book of 80 pages, by the capable editor of the "American Bee Journal." In both English and German. Price, paper covers, 40c.

The Hearing, and How to Keep It, by Charles H. Burnett, M.D.; Philadelphia: Lindsay & Blackiston. This is a small illustrated work of 122 pages, giving the anatomy and functions of the ear, and directions for preserving the organ in health. It forms one of a series called "American Health Primers," which, it is claimed, are published in the interest of sanitary science. To intelligent persons, works of this kind are useful. What may be their effect upon the ignorant, the nervous, and the chronically "out o' sorts," is a question. At all events, if we are to have popular books of this kind, it is fortunate that, like the present series, they are by men who stand high in the medical profession. Price 50c.

Vade Mecum of Equine Anatomy, by A. Liautard, M.D., V.S.; New York, published by the author. This is a hand-book of the anatomy of the horse, intended, as the title-page says, "for the use of advanced students and veterinary surgeons." Of course, a work of this kind has not a single popular feature, but, fortunately, the number of veterinary students and practitioners is yearly rapidly increasing, and such will find this work a useful remembrancer. The reputation of its author, who is at the head of the American Veterinary College, is a sufficient guarantee of the usefulness of the work to those for whom it was prepared.

Ames' Alphabets, by Daniel T. Ames, New York: Bicknell & Comstock. This contains 33 ample pages of designs for Alphabets, each page usually presenting a number of different styles. The author, who is styled "Artist Penman," would appear to have exhausted the capabilities of the alphabet in these designs, which range from the simplest up to the most elaborate, some being of exquisitely beautiful designs. The work is intended for architects, engravers, sign painters, etc., who must be difficult to please if they cannot find in this a letter suited to their wishes. Price $1.50.

How to Breed Light Brahma Fowls, by Geo. P. Burnham, and published by the author at Melrose, Mass. This forms part seven of a series of treatises by one of the oldest, if not the oldest of our fowl fanciers and breeders. The experience and teachings of a veteran like the author, who claims to have had the Light Brahmas 30 years ago, under another name, must be of value to others, who can purchase the work for 50 cents.

A Manual of International Law, by Edward M. Gallaudet, Ph.D. L.L.D., New York: A. S. Barnes & Co. This volume, by the President and Professor of Moral and Political Science in the College for Deaf Mutes, at Washington, D. C., while intended as a class-book for colleges, is one which will interest the general reader who would acquaint himself with the principles of International Law. Beginning with the law among the ancients, its progress is traced up to the present time, and discusses the diplomatic questions brought forward by the late civil war. The mechanical style of the volume (pp. 321, 12mo) is such as characterize the productions of these publishers. Price $1.50.

Ferns in Their Homes and Ours.—This beautiful work by Professor John Robinson has met with such a large sale that a new and enlarged edition is now called for. Price $1.50, post-paid. Address Orange Judd Company.

Fish-Hatching and Fish-Catching.—By R. B. Roosevelt and Seth Green. The authors of this little work have become authorities upon the various subjects which they treat. Price, post-paid, $1.50. Address Orange Judd Company.

Practical Boat Sailing.—By Douglas Frazar. The author claims that this volume will enable any one who masters it to successfully and safely sail a boat. Price $1.00. Address Orange Judd Company.

**State and Other Hand Books.**—Within a few years several States, whose areas are out of all proportion to their number of inhabitants, have issued "by authority," works which present the claims of their States to settlers, with the laudable view of increasing their population, and adding to their prosperity. Similar works, more or less extended, have been put forth by Railroad and other Companies having lands to dispose of, and devoted to more limited areas than those issued by States. So far as examined, these "Hand Books" appear to us to be eminently useful, even those in the direct interest of corporations seem fair in their representations. A brief mention of those recently received is all that we can now give.... *Cheap Homes in Sauk Valley* is a title of a pamphlet by the "Sauk Valley Immigration Association." It may be had free on application to the Secretary at Sauk Center, Stearns Co., Minn.... *A Hand-Book of Virginia.*—A volume of about 150 8vo pages, apparently carefully prepared by Doct. Thos. Pollard, Commissioner of Agriculture. Each County has its resources and advantages impartially indicated, and the work must be of great value to intending settlers in that State. We find no mention of the manner of distributing the work. The Commissioner's office is at Richmond.... *A Manual of Georgia.*—This is also an official work, prepared for the use of "Immigrants and Capitalists" by Doct. Thos. P. Janes, State Commissioner of Agriculture. A personal knowledge of the author warrants us in commending this as a truthful account of the resources of Georgia. As the work is copyrighted, we assume that it is not issued at the expense of the State. The Commissioner's office is Atlanta.... *The Lone Star Guide* is issued by the International and Great Northern Railroad of Texas. This road runs from Galveston, northwesterly to Palestine, where it unites with another portion of the road running from San Antonio to the State line, consequently the road passes through some of the best portions of the State. The road has lands for sale. It sends this "Guide" free. H. M. Hoxie, Palestine, is General Superintendent.

**Peach Yellows.**—The symptoms are, the production of fine, tough young shoots from the sides of the limbs bearing leaves of a yellow color. The fruit ripens prematurely; is insipid in taste, and presents patches of dark-red color through the flesh.

**Consumption of Sugar.**—England heads the list, and consumes 50 pounds of sugar per head. The United States stands next with 44 pounds. France sweetens at the rate of 15½ pounds, and Turkey uses only 3½ pounds *per capita*.

**Corn is King.**—Last year the Corn crop of the United States was worth 583 million of dollars, while *ex*-King Cotton gave us only 250 millions. Indian Corn is the sheet anchor of American agriculture, and demands our most careful consideration. What would England give if she could only raise Indian Corn!

**Brewer's Grains.**—In brewing, but a small amount of the valuable food materials is removed from the grain, and at the same time the process renders the grain soft and more easily digested. This constantly increasing product of the brewery has two principal disadvantages, namely: its tendency to sour in a short time, and the great amount of water it contains, thus making it unprofitable to transport it to any considerable distance. A remedy might be found in providing a place near the brewery where the grain could be thrown upon large screens in the sun, drained of the surplus water, and partially dried. A load of brewer's grains thus treated would represent vastly more food, and could be wet again before feeding if it should be found necessary.

**Bee Stinging.**—"Much depends upon how one is brought up." It is now claimed that a person who at first is greatly injured by bee stings may after a time become so accustomed to them, that they cause so little inconvenience that be may be stung and not know when the act is performed.

**When to Cut Fence Posts.**—James M. Ryan, Galena, Ill., in view of the different opinions as to the best time to cut timber to insure its durability, thus gives his experience: "The best fence posts, second only to Red Cedar, are made as follows: Strip the bark off of the young White Oaks (of the proper size for posts) from near the ground upwards sufficiently to deaden the trees, letting them stand for six months or longer, when they may be cut down and made into proper lengths for posts. As a result, the wood becomes solid and dry without cracking, and when cut will be fit for immediate use, and will be in a condition to exclude dampness from penetrating and rotting the post. The deadening may be done at any season, but the winter, or when vegetation is dormant, may be the best time. My experience has been with trees deadened when in full leaf, the wood of which, after they had stood about nine months, was found dried and solid, with the bark above the girdle loose, and easily removed."

**Storing of Fodder-Corn.**—The succulence of green corn-stalks renders them difficult to dry thoroughly. To stow away uncured corn-fodder, in stacks or barns, without precautions to prevent moulding, is unsafe. A good plan is, to shock the bundle in a convenient place, covering the top of the shock with a sheaf of straw, and binding the top tightly to exclude rain, and leaving the shocks out of doors until used. A few shocks may be brought in when needed, and will be found fresh, green, and in the best order. Sweet corn-fodder, with many small ears and nubbins on the stalks, may be covered and kept in this manner in the best condition.

**Choice of Breeds.**—The right thing in the right place is conducive to the best results. But it is unfortunate that so little judgment is exercised in selecting the best breed of sheep for use in particular cases. Persons are very apt to be misled by appearances, and a fine, large-bodied, long-wool sheep, which shows to advantage in an exhibition pen at the fairs, will tempt sheep-keepers to adopt that particular breed without consideration

as to the means at hand for keeping it. So a large-bodied, deep-uddered Dutch cow will mislead many a dairyman into choosing it for his special purpose, without a thought about its requirements as regards feed, pasture, etc. The same occurs with horses, and it is not at all uncommon to find ill-judged selections made of horses for farm use. If we were to choose our farm stock as carefully as we choose a coat or other garment, fewer mistakes and more profit would be made. It is an American failing to be easily misled. The success of adventurers and humbugs of all kinds, show this to be true, if it were not proved so completely by the many costly failures resulting from choosing homes even without due consideration, and from selecting at hap-hazard whatever stock animals may take the fancy or may have been bragged over by irresponsible or too sanguine persons, leaving afterwards unavailing regret at mistakes which take years to rectify.

**Broad Wheels.**—It is strange that the popular prejudice in favor of narrow tires for wagons and carts should be so firmly fixed as to prevent the use of broad tires. A wagon or cart with tires three or four inches wide may be drawn across a soft, newly-plowed field without cutting in, and on wet, muddy roads the surface is not cut up, but is packed down. The better condition of the roads and the saving of cost in repairs to them by the use of broad tires, would be enormous every year. Nevertheless, narrow tires are used almost universally.

**The Wheelbarrow** is almost as necessary upon the farm as a plow. The occasions when a wheelbarrow can be used, with both comfort and advantage, are innumerable. To be most serviceable, a wheelbarrow should be both strong and light. The wheel and tire should be made wider than is generally found. Wheelbarrows on the farm are frequently used on soft ground, and if the wheel is wide, it runs much easier. The wider the wheel, the more stable the barrow is when being moved. The "dump" form is the best for general use, as this has no sides to get lost; barrows of this style are usually better braced and durable. In getting a wheelbarrow, get the best, and keep it under cover when not in use.

**Tree Planting in Door Yards.**—It is a mistake to plant trees which grow naturally to a large size, near a house; and in an artistic point of view, the force of this remark is very evident. The trees when grown should be in proportion to the size of the yard, and if that be small, the trees should be selected accordingly. There are a number of evergreens such as varieties of the Spruces and others of small to medium stature, most appropriate to small yards; they are comfortable in winter as a wind-break, and handsome all the year round.

**The Cincinnati Industrial Exposition** has become one of the prominent institutions of the country. Its Exhibition this, its seventh, year will be held (Sept. 10th to Oct. 11th) in its new building, erected at a cost of one million of dollars. But our present mention is suggested by the receipt of the "General Circular," which in artistic execution calls for special comment, and in its contents, giving the classification of the objects to be exhibited, shows that this important matter has been carefully considered, and we have, well in advance of the time of opening, a schedule which could only be produced by competent hands. The Departments, distinguished by letters (A to Q), are 14, while these are subdivided into classes, numbering in all 85. Its Premium List, with plans of the building, and rules governing the Exhibition, is in equally handsome style. If the adage, "Well begun is half done," has force, the managers may congratulate themselves upon most satisfactory progress.

**The White Ash,** at three years, in good average soil, will reach a height of 7 to 8 feet and one inch in diameter; at five years, 10 feet in height and two inches in diameter. This is, all things considered, one of the most valuable timber trees to plant upon fairly good soil.

**Sheet Iron Shingles.**—Shingles of wood are in such general use with us, that they may be regarded as the roofing material of the country. As shingles grew more costly, our people did not go back to the earlier, cheaper, and in many respects excellent, thatch, but sought out new substitutes. These have been, as a general thing, a coarse or cheap fabric filled with some pitchy or "asphalt" composition, with or without the addition of gravel, or other material to give it body. None of these roofing materials appear to have come into general use, and while they answer fairly for temporary structures, their general lack of durability unfits them for permanent buildings. The most recent substitutes for shingles are the "Metallic Slates or Shingles," made by the "Iron Clad Manufacturing Company." Metallic roofs are among the oldest; lead, copper, zinc, and tin—or properly tin plate, having been used for roofing, though scarcely any of these except tin plate have been laid to any extent in this country. A tin roof well laid and properly painted is very permanent upon a flat roof, but the difficulty of laying, and of keeping in order increases with the pitch of the roof. One great difficulty with such a roof is, the sheets being soldered together, it is practically in one piece, and the contraction and expansion with the changes of temperature in such an extent of metal, causes the joints to break; besides, however well protected with paint it may be above, moisture can reach it from below, and rust may cause serious injury before it is discovered. These difficulties are avoided in the Metallic Shingles, these being in separate pieces, much like wooden shingles in size. Expansion and contraction being confined to each individual shingle, the roof, as a whole, is not affected, while they are equally protected on both sides from moisture. These Metallic Shingles are 8½ by 16 inches, with the lower half, wedge-shaped, or brought to a point. They are ingeniously grooved to produce lapping in laying, and this grooving both supplies water channels and strengthens each shingle. These shingles struck us favorably when presented to our inspection, but fearing that some defect not manifest at first, might be discovered by the storms of winter, we have deferred saying much about them until they had been properly tested. A careful inspection of roofs that have been covered a year or more, shows no signs of leakage, or other defect, and we feel safe in advising those in search of roofing material to examine the claims of the "Metallic Slates or Shingles."

**A Firm of Long Standing.**—Time matures and ripens many things besides wine. To say of a concern, "it is one of the oldest houses in its line of business," means something more than to indicate age; it implies that the house has a substantial basis, or it could not have endured the commercial changes and panics; it indicates that its dealings have been such, as to hold customers, when once secured, and many other things. The firm of Chapman & Van Wyck, is one of the oldest dealing in Peruvian Guano, in New York City, and when we say that they have been in the same business for over 30 years, those who know the changing character of New York business houses, are aware that such stability can only be acquired by real merit. This period has seen marked changes in the Guano trade, and covers nearly the whole of its history as a fertilizer, in this country.

**Heredity and Variation.**—Every living thing is influenced by two great and opposing laws—First, *Heredity*, or the tendency to be like the parent—embodied in the axiom "like produces like." This is strengthened by breeding those individuals which are the most nearly similar. The second, *Variation*, or the tendency to be unlike the parent; this is strengthened by breeding those individuals which are not similar, but as widely different as may be. In general "in-and-in" breeding strengthens *Heredity*, while crossing gives scope to *Variation*. Breeders of stock of all kinds should be familiar with, and regard these matters.

**Sun-Stroke** is caused by excessive heat; but loss of sleep, worry, and general debility will predispose one to it. Those obliged to work in the hot sun should wear a light straw hat with a wet cloth within; a cabbage leaf is often used for the same purpose. If a feeling of dizziness comes on seek a cool and shady place at once, and apply cold water to the head. Ammonia should be inhaled if faintness is felt, but very cautiously.

**Pork-Making.**—Chicago is now the greatest pork-packing city in the world. She has over forty establishments where hogs are converted into pork, in some of which all the preliminary stages of killing, scalding, scraping and dressing are gone through with in the space of ten minutes. Chicago claims to kill a hog for every ten seconds in the year. She is *Porkopolis* now.

**Pure Coffee.**—This is an age of adulteration, and the practice is carried so far that articles used for adulteration are themselves adulterated. Coffee suffers as much as any other single article from this contemptible deception. Almost every kind of seed large enough to roast is used for this purpose, and various roots from Parsnips to Dandelions are called into the service. Ground coffee will float on cold water, and not soon color the liquid; the adulterations will sink, and discolor the water at once. It is best to buy the coffee in the "berry," and grind it at home, or see that it is properly done. Even then one may be defrauded, as there are machines for making artificial green coffee.

**Feeding Bran.**—Bran is not only an excellent food for the production of milk in cows, but also for feeding young animals. It contains a large proportion of the phosphates, which are a most necessary part of the food of an animal, but one in which most foods are deficient. In a ton of wheat bran there is 54½ lbs. of Phosphoric Acid, and in a ton of rye bran 68½ lbs. Rye bran is also richer in Potash than that of wheat, by nearly 40 per cent; hence for food, and for the resulting manure, rye bran is preferable. In feeding bran the value of the manure should be taken into consideration. This, although it may not be seen so conspicuously, nor so quickly as the milk in the pail or the increased thrift of a young animal, yet it as certainly exists, and in good time will show itself in the field. It is beyond question that in feeding a ton of bran, the larger part of the profit is made in the manure, and if one is satisfied with what he gains directly in the feeding, he may be all the more so with that which he receives in the manure.

**String-Halt.**—"W. A. E.," Arkansas City, Kans. String-halt is an affection of the nerves, by which the control of certain muscles of the hind leg or legs is lost, either continuously or spasmodically. It is incurable, but is mitigated sometimes by the use of Belladonna, Strychnine, or other antispasmodics or nerve medicines. No horse having this disease, which is an unsoundness, should be used for breeding.

**Gapes in Chickens.**—"W. F.," Brooklyn, N. Y. Gapes is the result of parasitic worms in the wind-pipe. The only cure is to dislodge them. This is sometimes successfully done by putting the chicks in a box, covering the top with a piece of muslin, and dusting fine lime through the cloth. The chicks breathe the lime, and as it comes in contact with the worms, these let go of the membranes, and are dislodged by the coughing and sneezing of the chicks. To prevent gapes, the chicks should not be kept on ground where fowls have previously been.

**Ropy Cream.**—F. D. Young, Altoona, Pa. When milk throws up a ropy glutinous substance in place of cream, it is an evidence that the cow is not in a healthy condition. A dose of Salts (12 oz.) may be given, and a few one ounce doses of Hyposulphite of Soda given daily may remove the difficulty. Clover alone is not good pasture for milk, and is apt to disturb the condition of the cow; if a few pounds of bran, or two pounds of cotton-seed meal are given each day, it will probably help to remove the ropiness.

**Sowing Orchard-Grass.**—"M. J. B." There is no other grass that does so well under shade as Orchard-Grass. If the ground is plowed and harrowed this month, the seed may be sown either alone or with a bushel of oats per acre. The oats can be mowed or pastured in October, or will freeze and die down, forming a mulch for the grass. Forty lbs. of Orchard-Grass seed should be sown per acre. Twenty lbs. each of Orchard-Grass and of Blue-Grass makes an excellent mixture.

**"Big Head."**—"M. W.," Davies Co., Ind. "Big Head," is incurable. It is a disease of the bones of the head, and can only be treated by removing the bones, which, in that part of the body, would obviously destroy the animal. The disease consists in the growth of spongy excrescences on the bone, which arise from scrofulous, or other unhealthy condition, which is constitutional. The disease may be mitigated, and the final result postponed by the use of Iodine and Hyposulphite of Soda, with Iron, but the advice of an educated veterinary surgeon should be taken, before using them.

**Stagnant Water.**—One of the most fertile sources of diseases is a pond of filthy water made so by soakings from the barnyard. Such a breeder of foul gases should not exist, much less be a repository for dead animals and decaying garbage.

**Lambs for Market.**—"R. S. G.," Houston, N. Y. The most desirable lambs for market, are a cross of Southdown on Merino. These are fat and plump, with small bones, and have the black faces and legs of the sires, which are a recommendation with the butchers. A cross of Cotswold on Merino, produces a larger lamb, but it is looser bodied, and more bony. Either the Southdown, or the Cotswold makes a good cross on Merino ewes, the mutton is good, and the lambs are vigorous.

**Implements.**—When the tools and implements are done with for the season, they should be thoroughly cleaned and put away in safe, dry places. It is a good plan to protect journals and gearings from dust and rubbish, by tying them up in stout paper or pieces of cloth. It will save much time and labor in cleaning them in the spring when one is busier than now.

**Strangles in a Colt.**—"F. K.," Etna, N. Y. The swellings of the glands of the throat near the angles of the jaws, are probably "Strangles," and not Goitre, which rarely appears in horses. Goitre is a permanent enlargement of the *thyroid gland*, supposed to be caused by the use of impure water. There is no suppuration, and the tumor is fleshy and vascular, and often of a gritty substance from the deposit of mineral particles. In horses and single hoofed animals, Goitre appears as two distinct swellings, while in others it is one, and appears in the

front of the throat. Strangles consists of a suppurative swelling, or abscess, adjacent to the glands, and often occurs in greater part on the inside of the throat, obstructing breathing and causing suffocation, (whence its name), if not successfully treated. Young horses are subject to the disease, which is a disorder of the blood productive of a poisonous discharge which should be encouraged to escape and relieve the system. The more perfect the escape the better recovery is made; absorption of the pus or poisonous matter of the blood causes dropsy, farcy, glanders, or an early death. The treatment should be such as to cause a vigorous ripening of the abscess, and a copious discharge. Poulticing the parts is recommended, and when the abscess becomes filled with pus, and is soft and yielding to the touch it should be opened freely and the matter discharged. The opening should not be allowed to close until the discharge ceases, when it will heal without trouble. It is well to keep a plug of lint in the opening to favor a free discharge, and to soak the lint in Compound Tincture of Benzoin as a stimulant. Goitre, on the other hand, can be safely absorbed, and to effect the absorption Iodine is employed, either in the form of ointment applied twice daily to the swelling, and rubbed in well, or in the form of the tincture, of which two or three drops are injected into the tumor by a hyperdermic syringe. This treatment needs continuing for some months, as the operation is very slow.

## Nuts and Nubbins.

For rest, go to the forest.

The electric light keeps dark.

Needs looking into—a telescope.

Expensive wives make pensive husbands.

One touch of humor makes the whole world grin.

Toast by our bachelor friend—The day we eclibate.

Temper is so valuable a thing that no one should lose it.

Folks are very foolish to take a *fresh* cold. If you must, get 'em *cured*.

"Who was the first man?"—Ans: "Adam."—"Who the first woman?"—"Madam!"

If you should ever come within a mile of my house I hope you will stop *there*.

A man has seen an oyster so large that it "Took three men to swallow it."

A brainless baby has been born in Washington. It is reported to have many sympathizing friends in Washington.

"But I will not linger upon this point," as the preacher said when he sat down on a carpet tack.

"I have named my rooster Robinson."—"Why."—"Because he *crew-so*."

"What does your dog want here," said a dry goods' clerk—"Muzzlin" was the ready reply of the dog owner.

A man in Maine is so tall that he never finds out that his feet are cold until they get warm again.

A college student, when asked what stars never set, replied *roostars*.

The way the earth "laughs with a barvest"—Hoc! Hoe! Hoc!

Skyrockets were recently quoted with an upward tendency.

An electrical girl has been discovered in Canada; she ought to marry a good conductor.

The young lady who married her father's coachman says she was driven to it.

"If I am stuck up, I am not proud," as the butterfly said when pinned to the side of the show-case.

A gentleman who had been struck by the young lady's beauty was determined to follow the injunction, and "kiss the rod that smote him."

And now an Englishman travelling in the Holy Land has discovered Jacob's well. Glad to hear it. We supposed Jacob died a good many years ago.

Our friends can go on with their tin weddings. We don't dread them half as much since the five cent counters were opened.

It was an Albany schoolboy who, believing in translations as free as the genius of our country, translated *dux femina facti:* the fact is woman is a duck.

A young lady of New Fairfield, Conn., last year made three-quarters of a ton of butter and disposed of it herself.—*Cincinnati Gazette.* Thunder, what an eater.—*Boston Post.*

A military man, pitching into an opponent, exclaimed: "Why, his sword was never drawn but once, and that was in a raffle."

Down in Georgia, says the Louisville *Courier-Journal*, they are in favor of removing the tax on quinine and putting it on dogs. Changing the duty on bark, as it were.

The gang of burglars who work for seven straight hours to hammer a safe to pieces to secure fourteen cents, know how a country minister feels next day after a donation visit.

"It's only a spring opening, ma," exclaimed the boy as he exhibited his torn trousers after a leap over a picket fence.

"Ye are the children of the devil," was the text of the divine in the morning; in the afternoon it was "Children, obey your parents."

An Atlanta darkey who tried to send one of his children through the postoffice was arrested for attempt at blackmailing.

"George, dear, don't you think it's rather extravagant of you to eat butter with that delicious jam?"—"No, love, economical; same piece of bread does for both."

Charles Lamb, when spoken to for getting to his office so late in the morning, replied, "Yes; but you see I make it up by going away earlier in the evening."

A grocer had a pound of sugar returned with this note: "Too much sand for table use, and not enough for building purposes."

"I'm kept so busy with this big estate my brother left me," said a sharp Yankee lawyer, "I declare sometimes I almost wish John hadn't died."

Bachelor Sam Scudder, of Wild Cherry Creek is quite bald. When the girls see him coming, they say: "Here comes 'Bal'sam of Wild Cherry,'" and then begin to cough

It must have been a sweet little creature who said that fireflies were made by God to "y'te ze 'ittle froggies to bed."—If she is 17 years old, all the same.

A gentleman noticing that his wife's bonnets grew smaller and smaller, and the bills larger and larger, calmly said: "I suppose that things will go on until the milliner will send nothing but the bill."

"We are two to two," said the card players at one table.—"And we are *two to two too*" responded a player at an adjoining table. No wonder a German, present, likened our language to a French horn.

A weather-wise man said: "After three successive frosts always look out for rain."—"But suppose you don't have any frosts at all," said his wife.—"Well, always look out for rain anyhow."

"Who's there?" cried a gentleman disturbed from his rest by some one knocking on the door.—"A friend," was the reply.—"What do you want?"—"I want to stay here all night."—"Queer taste; but stay there by all means."

An obliging spirit prompted the Jersey farmer who put a two-pound whetstone in every turkey he sent to New York market. He knew the buyers would find the stones indispensable when it came to carving the fowls.

A dissipated and unmannerly nobleman, presuming upon his "nobility," once asked Sir Walter Scott, who sat opposite to him at a dinner, what the difference was between Scott and sot.—"Just the breadth of the table, Sir."

Mrs. Mackay, wife of the Bonanza king, has over $250,000 worth of jewelry, and when she gets the toothache she suffers just as much as the woman whose bracelets and diamonds came from the ninety-nine cent store.

Edison has worn his head nearly bald trying to invent a machine that would calculate with some kind of accuracy the difference between the weight of a fish when it is first taken out of the water and when it gets into the newspapers.

Fresh, (anxious about his rank), to Professor of Mathematics—"What will be my rank for the term?" Professor.—"That is not easily determined; it is less than any assignable quantity."

A young man, the other day, got married against the wishes of his parents, and, requesting a friend to break it to them, said: "Tell them I am dead, old fellow, and gently work them up to the climax."

"How is it, miss, you gave your age to the census-taker as only twenty-five, when you were born the same year I was, and I am thirty-nine?"—"Ah, you have lived much faster than I, sir."

There is an old lady, 107, in Boston, who never uses spectacles, and whose sight is as good as ever it was. [P. S. The *Boston Post*, which records this remarkable fact, adds that the old lady was born blind.]

Ladies beyond the thirties choose wide ribbons for decorating costumes.—*Albany Argus.* See here; have you got a grudge against some man who has a lot of wide ribbon for sale.—*Boston Post.*

A Loudon newspaper relates that when a Frenchman, who fell overboard from the steamer which took the Cobden Club back from Greenwich, was rescued and returned to the deck, the first thing he courteously said was that he hoped he had not kept the steamer waiting.

A minister, who was speaking quite loud, saw a woman leaving the church with a crying babe, and thereupon exclaimed: "Your baby don't disturb me, madam."—"That isn't it, sir," she replied; "you disturb the baby." Of course every effect must have a cause.

A wag brought a horse driven by a young man to a stop in the street by the word "Whoa," and said to the driver: "That's a fine horse you have there."—"Yes," answered the young man, "but he has one fault. He was formerly owned by a butcher, and always stops when he hears a calf bleat."

Old Salt: "Too old to manage a boat, am I? I can still row and steer and set sails and scull—" Doctor: "Oh, an automaton could do all that. I believe man is but an automaton, after all."—Old Salt: "Could a toumy-tou take the roomey-tiz?"

A lisping boy was out in the back yard pounding on a tin pan. The father came in tired and sullen, and being disturbed by the noise, cried out: "What is turned loose in the back yard; a wild animal?" The little fellow replied: "Yeth, thir, it's a pan thir."

When Benjamin Franklin was an editor he was in the habit of writing to the young ladies who sent in poetry, saying in honeyed language that owing to the crowded state of his columns, etc., but he would endeavor to circulate their productions in manuscript. And then he tied the poems to the tail of his kite for "bobs."

Brown to Jones—"You missed it by leaving us at the lunch t'other afternoon. Champagne was excellent, and got better after you left. Jones—"Fact is, I had to get back to the store to look after the boys, and, just as I expected, when I got there I found everything topsey-turvey." Brown—"My experience, exactly. When I got home I found my wife and hired girl standing on their heads, and the house spinning around like a top."

At the steamboat explosion at Lake Minnetonka, a man who put out to the wreck in a boat succeeded in rescuing a lady, who at once piteously implored him to try and save her dog. This he refused to do, and a moment later she pointed to a gentleman, who, half in the water and half out, was clinging, beside the engineer, to a large piece of the wreck that was floating in the vicinity, and requested her rescuer to save him, too, as he was her husband. He was fished out, but the dog was not recovered.

A sad event has occurred in the family of asteroids. Hilda is lost. One of the nearly two hundred members of the planetary sisterhood revolving between Mars and Jupiter can no longer be found in her accustomed celestial haunts. It is not known whether Hilda has eloped with her father's coachman, or has run away and joined a travelling Pinafore troupe. We have predicted time and again that if Hilda's parents didn't keep a close eye upon her she would give them trouble. Being a revolver, it is not strange that she has "gone off."


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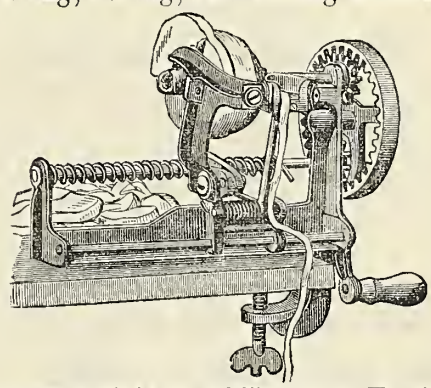

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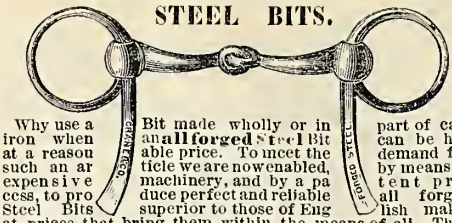


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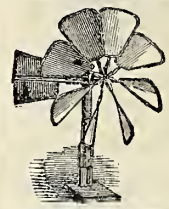

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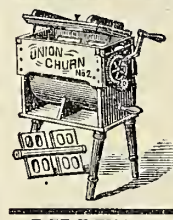


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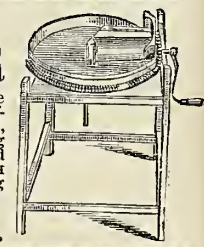

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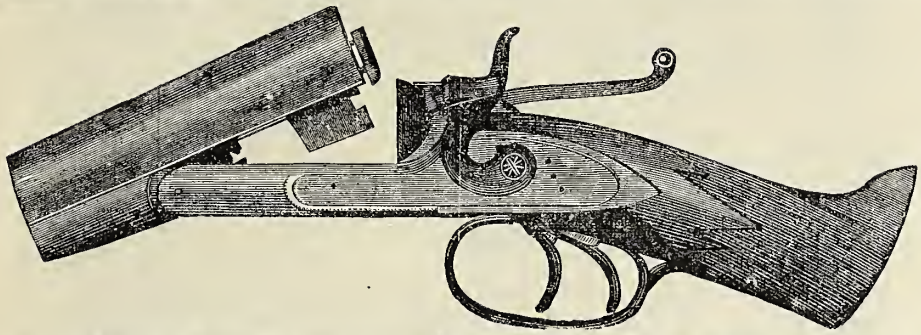

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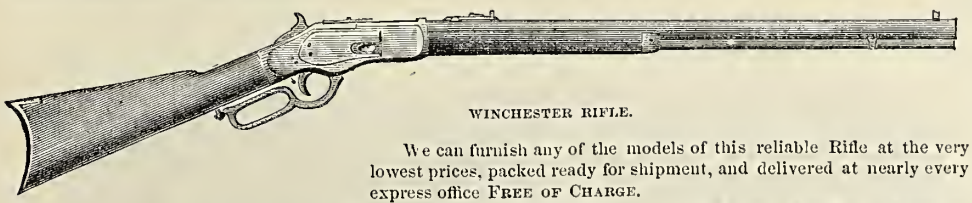

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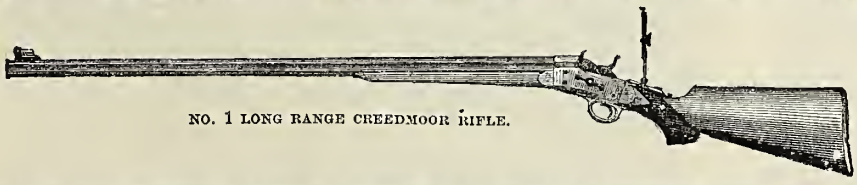

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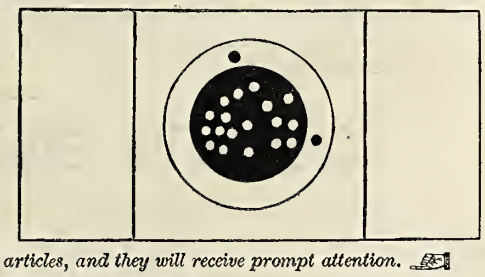

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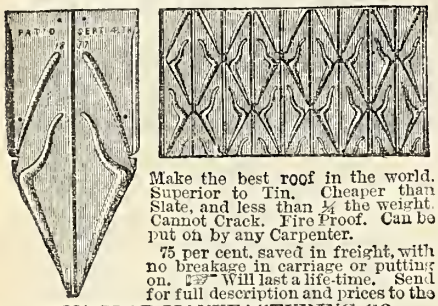

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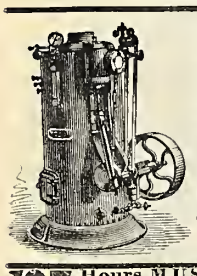

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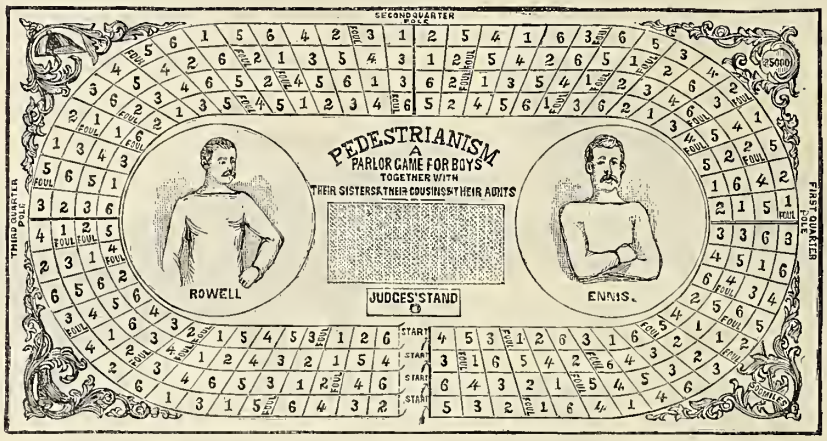


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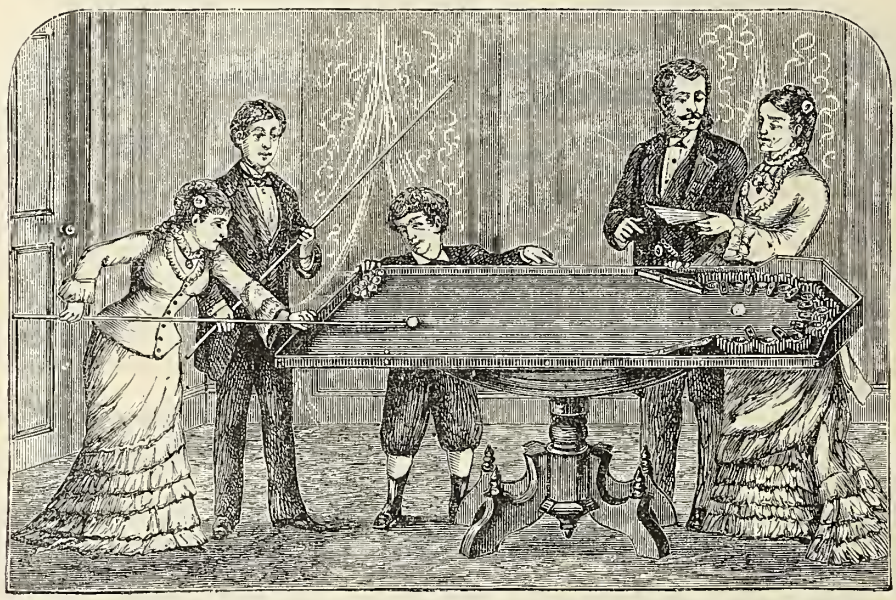

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FOR THE FARM, GARDEN & HOUSEHOLD.

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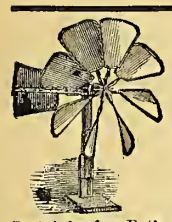

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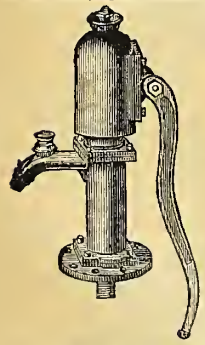

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STARTING FOR THE FAIR.—DRAWN BY W. M. CARY.—*Engraved for the American Agriculturist.*

It has come at last—the day for which the whole family have been looking, working, and preparing—the day of the Fair, and now on this bright September morning, when the air is filled with the odors of ripeness, and the whole country smiles with a bounteous harvest, this good farmer's family are about starting for the Fair. It is the end of many days of careful thought and anxious preparation. Charlie is afraid that the colt may be just too frisky, and forgetting the care given to the last grooming, may rumple a hair or two; George is in doubt whether his young steers may not forget the many hours of careful training, and in the confusion of sights and sounds at the fair, fail to do as well as they have already done in the yard this morning; each of these has all he can do to care for his pets, and the loading up falls to the father and others. The potatoes, the turnips, the apples, the squashes, the pumpkins, and the chickens, must all be carefully stowed away. The bread, which the mother was up long-before daylight to bake, must have a safe place, and the bouquet to which the older daughter has given all the best flowers of her garden—that must be carried by hand. But there is the quilt—grandmother feels too old to enjoy the Fair, besides some one must be left at home "to look after things"—but she has made a quilt—one of those marvels in patch-work without which no well-regulated Fair can be complete. So make a place for the quilt in the load—for precious loving thoughts have been worked in with the stitches—and one of the best places too at the Fair, for grandmother will not make quilts for many more fairs. The family have not started, yet what a world of good has its preparation brought! Did not the father learn that in raising ruta-bagas and mangels fit to show, he must give each root a plenty of room? Has not the older son, to beat his neighbor on apples, thinned that Baldwin tree at least three times during the season? The son with the colt and the other with the young steers, what an amount of self control they have learned in trying to control their animals, and the mother, the daughters, and all have in their work of preparation, already had much interesting occupation—and the enjoyment of the Fair is still to come. We hope that this picture may serve as a representation of what will take place in many and many a farmers' family this month and next, throughout our broad country. The isolation of the family is the great misfortune of our farm life. The house is placed as near as may be in the center of our large farms, and neighborly intercourse is difficult. Hence it is all the more necessary for the farmer and his family to make the best of the opportunity for social enjoyment afforded by the local fair. If the fair did only this, it would be worthy of encouragement; but it does much besides. These good people will go to the Fair, see much, meet many old friends, learn much, and, let us hope bring away pleasant recollections—and some premiums. But what they will take is far better than any premiums they will bring away—for they take their best—they show that they have a pride in the farmers' life, and they show the best products of that life—not in the crops, the steers, the colt and chickens, the bread or quilt, but in the very best of all products of the farm, the men and women, and the boys and girls, who will soon be men and women. These are the best products of American farms, and they are such products as the farms of no other country can show.

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## Calendar for September, 1879.

| Day of Month. | Day of Week. | Boston, N. England, N. York State, Michigan, Wisconsin, Iowa, and Oregon. | | | N. Y. City, Ct., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois. | | | Washington, Maryland, Virginia, Kentucky, Missouri, and California. | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Sun rises. | Sun sets. | Moon rises. | Sun rises. | Sun sets. | Moon rises. | Sun rises. | Sun sets. | Moon rises. |
| | | H. M. | H. M. | H. M. | H. M. | H. M. | H. M. | H. M. | H. M. | H. M. |
| 1 | M | 5 25 | 6 35 | 6 40 | 5 27 | 6 33 | 6 41 | 5 29 | 6 31 | 6 41 |
| 2 | T | 5 26 | 6 33 | 7 2 | 5 28 | 6 31 | 7 3 | 5 30 | 6 29 | 7 5 |
| 3 | W | 5 27 | 6 31 | 7 27 | 5 29 | 6 30 | 7 29 | 5 31 | 6 28 | 7 30 |
| 4 | T | 5 28 | 6 30 | 7 49 | 5 30 | 6 28 | 7 53 | 5 32 | 6 26 | 7 57 |
| 5 | F | 5 29 | 6 28 | 8 17 | 5 31 | 6 26 | 8 22 | 5 33 | 6 25 | 8 28 |
| 6 | S | 5 30 | 6 26 | 8 50 | 5 32 | 6 25 | 8 56 | 5 33 | 6 23 | 9 2 |
| 7 | S | 5 31 | 6 24 | 9 29 | 5 33 | 6 23 | 9 36 | 5 34 | 6 21 | 9 43 |
| 8 | M | 5 33 | 6 23 | 10 16 | 5 34 | 6 21 | 10 23 | 5 35 | 6 20 | 10 31 |
| 9 | T | 5 34 | 6 21 | 11 11 | 5 35 | 6 20 | 11 18 | 5 36 | 6 18 | 11 25 |
| 10 | W | 5 35 | 6 19 | morn | 5 36 | 6 18 | morn | 5 37 | 6 16 | morn |
| 11 | T | 5 36 | 6 17 | 0 13 | 5 37 | 6 16 | 0 19 | 5 38 | 6 15 | 0 25 |
| 12 | F | 5 37 | 6 16 | 1 20 | 5 38 | 6 15 | 1 25 | 5 39 | 6 13 | 1 29 |
| 13 | S | 5 38 | 6 14 | 2 29 | 5 39 | 6 13 | 2 33 | 5 40 | 6 11 | 2 37 |
| 14 | S | 5 39 | 6 12 | 3 41 | 5 40 | 6 11 | 3 44 | 5 41 | 6 10 | 3 46 |
| 15 | M | 5 40 | 6 10 | sets | 5 41 | 6 10 | sets | 5 42 | 6 8 | sets |
| 16 | T | 5 41 | 6 8 | 6 0 | 5 42 | 6 8 | 6 2 | 5 43 | 6 6 | 6 4 |
| 17 | W | 5 42 | 6 7 | 6 29 | 5 43 | 6 6 | 6 31 | 5 44 | 6 4 | 6 35 |
| 18 | T | 5 43 | 6 5 | 7 0 | 5 44 | 6 4 | 7 5 | 5 45 | 6 3 | 7 10 |
| 19 | F | 5 44 | 6 3 | 7 33 | 5 45 | 6 3 | 7 44 | 5 46 | 6 1 | 7 50 |
| 20 | S | 5 45 | 6 1 | 8 24 | 5 46 | 6 1 | 8 31 | 5 47 | 5 59 | 8 33 |
| 21 | S | 5 46 | 6 0 | 9 20 | 5 47 | 5 59 | 9 27 | 5 48 | 5 58 | 9 37 |
| 22 | M | 5 47 | 5 58 | 10 24 | 5 48 | 5 58 | 10 31 | 5 49 | 5 56 | 10 38 |
| 23 | T | 5 49 | 5 56 | 11 33 | 5 49 | 5 56 | 11 39 | 5 50 | 5 54 | 11 45 |
| 24 | W | 5 50 | 5 54 | morn | 5 50 | 5 54 | morn | 5 51 | 5 53 | morn |
| 25 | T | 5 51 | 5 53 | 0 44 | 5 51 | 5 53 | 0 49 | 5 51 | 5 51 | 0 53 |
| 26 | F | 5 52 | 5 51 | 1 53 | 5 52 | 5 51 | 1 57 | 5 52 | 5 50 | 2 1 |
| 27 | S | 5 53 | 5 49 | 3 1 | 5 53 | 5 49 | 3 3 | 5 53 | 5 48 | 3 6 |
| 28 | S | 5 54 | 5 47 | 4 6 | 5 54 | 5 48 | 4 7 | 5 54 | 5 46 | 4 3 |
| 29 | M | 5 55 | 5 45 | rises | 5 55 | 5 46 | rises | 5 55 | 5 45 | rises |
| 30 | T | 5 56 | 5 44 | 5 28 | 5 56 | 5 44 | 5 31 | 5 55 | 5 44 | 5 33 |

PHASES OF THE MOON.

| MOON. | | BOSTON. | N. YORK. | WASH'N. | CHA'STON | CHICAGO. |
|---|---|---|---|---|---|---|
| | D. | H. M. | H. M. | H. M. | H. M. | H. M. |
| 3d Quart. | 8 | 3 20 ev. | 3 8 ev. | 2 56 ev. | 2 44 ev. | 2 14 ev. |
| New M'n | 16 | 1 13 mo. | 1 1mo. | 0 49 mo | 0 37 mo. | 0 7 mo. |
| 1st Quart | 22 | 4 36 ev. | 4 24 ev. | 4 12 ev. | 4 0 ev. | 3 30 ev. |
| Full M'n | 30 | 4 33 mo. | 4 21 mo. | 4 9 mo | 3 57 mo. | 3 27 mo. |


# AMERICAN AGRICULTURIST.

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## Hints for the Work of the Month.

[*The Hints and Suggestions in these columns are never copied from previous years, but are freshly prepared for every month, from the latest experience and observations, by practical men in each department.*]

*Fall Grain.*—This month is the usual time for sowing wheat and rye. From the 10th to the 15th is the most popular time, hut it is a question if it is not better to sow earlier. On any but very rich soils, it takes some time for the crop to get thoroughly well rooted and tillered, and if tillering is not effected before winter, it will rarely take place to any great extent in the spring. As the yield depends on the tillering, the promise of an early sown crop, is better than that of a late one.

*Exceptions to this Rule* occur with very rich soils, where an excessively strong growth may be looked for, and the attacks of the Hessian fly must be considered. These hints, it is obvious, cannot be made to meet every case in a wide range of localities; we give general information, which the intelligent reader will adapt to his own circumstances.

*Late Sowing for Spring Fodder.*—It has been usual to sow rye as late as October or November, for green-fodder in the spring. This is not a profitable practice. The rye comes up very thin and poor, and makes but a light crop. In the writer's experience, it has been found better to plow the ground in the fall, top-dress it through the winter with fine manure, and as early in the spring as possible, harrow in 4 bushels per acre of spring rye, spreading the manure at the same time with the disk harrow. Unless there is some good reason for the late sowing of rye, it should be avoided.

*Fertilizer for Wheat.*—Every year's experience proves the value of superphosphate of lime, as a special fertilizer for wheat. An experienced wheat grower informs us, that he has used 500 lbs. to the acre, and that the crop this year, has paid handsomely for the outlay. Where a smaller quantity was used, the yield was unsatisfactory.

*A Frequent Mistake* is made in supposing that if a certain quantity of fertilizer will have a certain effect, this effect will he doubled by doubling the quantity of the fertilizer. This has led to much waste and loss. The greatest possible effect is produced with a certain quantity, varying according to circumstances; and each one must discover for himself, what this quantity is. In the case above quoted, 500 lbs. per acre is the most useful quantity. Others have found it best to use 600 lbs. and others again, use only 300 lbs. As a rule, the largest applications may be most safely made on soils well filled with barn-yard manure, or vegetable matter.

*The Use of Lime.*—An application of lime will be found useful upon any kind of soil, at least once in five or six years. It is generally used at this season, with a fall grain crop. But where lime is employed, it will be useless to apply superphosphate, as this combines with the lime, and becomes simple phosphate of lime, which is insoluble. Many farmers who have applied superphosphate without effect, may find the explanation in the fact, that their soils were filled with lime, which rendered it inert.

*Smut and Rust.*—These troublesome diseases of wheat and rye may be prevented by pickling the seed. The pickle may be made of strong brine, or of a solution of 4 ounces sulphate of copper, in one gallon of water. Sprinkle the seed grain, stir thoroughly to wet every kernel, and spread to dry. Either of these will destroy the spores, which are the seed of the parasitic fungi, known by the above names.

*Smut in Corn.*—Smut is poisonous, or at least very injurious, and care should be taken to prevent it from being eaten with fodder. It is becoming very common in corn. It might be well to pass through the corn-fields with a sharp knife and a basket, and cut off all the bunches of smut and smutty ears, and carry them out where they may be burned. As one square inch of surface may contain 4,000,000 spores of smut, and every spore is capable of producing a smutty plant, it is important to carefully destroy every ball of smut.

*Turnips.*—The cultivation of turnips and rutahagas, consists of keeping free from weeds, and thinning out to a proper distance. One good root at every 9 inches, is far better than two or three poor ones in that space. To have good sound roots of any kind, sufficient room must he given.

*Beets and Mangels.*—Early sown beets and mangels, may be harvested late this month. If left later, the roots may become hollow and stringy. An over-grown root may be large, but its size is no indication of its value. We harvest our early sown mangels as soon as the larger ones become hollow, and find they ripen in the pits as well or better, than if left in the ground later. The tops may be fed to cows or sheep with benefit.

*Pitting Mangels.*—In pitting mangels lifted this month, care must be taken to manage them so that they will not heat. If a cool and well ventilated root-cellar is provided, there can be no safer place for them. In pitting them in the field, we gather 20 rows together, which makes a long heap, not large enough to cause heating. The roots may be covered with the tops, or with straw, held down by a few rails. Afterwards these rows may be gathered together into pits and prepared for winter.

*Buckwheat.*—This crop, being easily injured, should be cut after the first light frost. Low grounds should be cleared first; upon high ground the crop will not be touched by light frosts, and here it may he left later. The grain shells so easily that it should be harvested early in the morning, when moist with dew. After lying a few days to cure, it should be raked up when it is moist.

*Beans.*—If wet weather occurs when beans are ready to pull, it is necessary to protect them from the rain. This may be done by driving stakes in the ground, and stacking the beans around them, and then covering the top with straw. In pulling beans by hand, three or four rows may be thrown together, and left looscly, so that they will cure. Then, in case of threatened rain, they may be quickly gathered into stacks.

*Corn* should be cut as soon as it is ready. Early corn will he ready for cutting this month, and the stalks will be much more valuable when cut green than if left to be killed by frost. Frosted corn-fodder will not cure well, and is damaged for use. When the grain is well glazed, and hard on the surface, the crop may be cut. Early cutting helps

early curing, allows the husking to he done in good season, and the fodder to be housed before winter.

*In Shocking Corn*, the use of good bands will save much lahor aud loss. Some sheaves of hand-thrashed rye-straw, thoroughly well wetted, will make tough and strong bands. What is much wanted is a permanent and strong sheaf-band for this purpose, which will last more than one season, aud will serve for corn and other grain. Osier willows may he profitably grown for sheaf-bands.

*Potatoes.*—Early potatoes should be dug without delay. A few rains will start the ripe tubers into new growth, to their lnjury. Late potatoes should be thoroughly cleared of beetles, hefore it is too late to prevent the larvæ from rctiring to the ground for maturing. It is the last brood of insects which stocks the ground for the next season.

*Rats.*—The damage by rats is one of the most serious losses to which farmers are subjected. Ou the whole, this loss is douhtless greater than that from all the fires which occur upon farms. We have tried a preparation called "Poisoned Wheat," put up for the purpose of destroying vermin, and find it very effective. The rats disappear; that is, all that eau be noticed. But poison of any kind should he used so that fowls or other auimals eannot get it. To destroy the rats is now a timely work, and will prevent much future loss of grain.

*Live Stock.*—During the hurry of work at this husy season, the stock ought not to he forgotten. One of the most important requisites for health and thrift is regularity in feeding and watering. This refers not only to times of feeding, but to quantities aud qualities of fodder. Now that grass is past its hest state, the stock may have some roots pulled for them, or some corn-fodder eut, and young animals will he greatly henefited hy a little concentrated food. It is important that live stock have a plenty of good fresh water, especially at this time of the year, wheu the herhage does not afford the abundance of juices of spring growth.

*Sheep.*—A run in a field from which early roots have beeu gathered will be benefieial to the floek. It will help to accustom them to the change of food which will soon he required. Small or imperfect roots may be left ungathered for them, which they will pick up for themselves. Where early lambs are not desired, the rams should he kept separate from the ewes; or, if it is not conveuient, the ram may be aproned or "hratted."

*Pastures.*—The droppings of the animals on the pastures should be scattered and spread. This not only manures the field, but prevents injury to the spots eovered with droppings. A dressing of plaster over the pasture will be useful, sweetening the fouled spots, aud so avoiding the unequal eharaeter of the surface caused by the neglect of eattle to eat down the herbage in otherwise distasteful places.

*Sundry Matters.*—Harvesting machinery should be cleaned and stored away. The hright parts may he kept from rusting hy eoating them with paraffine or tallow. Oue of the best preparations to protect iron or steel from rust is made hy melting a pound of fresh (not salt) lard, with a piece of rosin the size of a hen's egg—the exaet proportion not important. Melt the two together, and stir as it eools; keep secure from dust, and use it on all parts of machinery liahle to injury hy rust....The hearings should he well wiped, and oiled with castor-oil. All dust shoul'd be removed, and, with costly machinery, it will pay to provide a sheet or blanket to cover it with as a protection from dust. ....Where swamp-muck is to be dug, it is best to give the work by contraet. A good man can make fair wages at 15 cents a cuhie yard; if the workman is not a good one, he eannot expect higher pay on that account. Muek should he dug hefore eold weather eomes, as it is disagreeable work when the ground is full of eold water....Hay that is stacked should be hauled in, or the stack should be protected on the top hy extra eovering. Coarse herbage or weeds, *not in seed*, may he cut and hauled into the harn-yard, and spread to form a basis for a deep coating of manure and an ahsorhent for moisture. An ahundance of litter will soak up the water, and prevent the drainage whieh so often flows from yards, and accumulates in foul pools.

## Notes on Orchard and Garden Work.

This should be a harvest month of the orchardist and gardener, in more senses thau one. Aside from the ingathering of the maturing produets of his owu orchard and garden, there are the various fairs and gatherings, from which the experience of the most successful should be reaped. The wide-awake fruit raiser, will not only be on hand at the fairs with his best fruit, but on the alert to learn how his competitors grew their produets. Such a person will look upon the knowledge he ean gain at the fair, as of much greater importance, than the money value of any prize he may seeure. Too many go empty handed, and seeing what others bring, remark that they have hetter than that at home. Such persons make themselves very disagreeahle, and deserve no better treatment, than to have their statements met with—"We don't believe it." These grumblers and boasters of what they left at home, are an injury to every fair, especially the smaller ones. They stand aloof and discourage others, instead of taking hold with their neighhors and making the fair what it should he. There is nothing that so interests one in a fair, as heing an exhibitor. Every person should feel free to ask, (and answer too,) any questions that may eome up; it should he a time for the liberal exchange of thought and experienee. Those who simply go around and *see*, are not gaining the information that the opportunity offers. The County fair should be talked of, for weeks before it comes, so that all the people of the region will learn that "so and so" is to exhihit "this and that," and thus awaken interest and secure competition. Those who ean do so should go, and take their best things, to the State fair;—hut the first duty is to the fair nearest home. While it is wise to give to the fairs all the time that ean he afforded, the work at home must not be negleeted,as the season's profits depend largely upou the way the crops of the orchard and gardeu are cared for, picked, packed, and marketed.

### Orchard and Nursery.

*Apples.*—It does not pay to market inferior speeimens; but in this season of scarcity, it will pay to send smaller fruit, if fair and sound, than in years of ahundance. Assort and paek with unusual care.

*Cider.*—While the hest cider is made from late ripening fruit, and in eool weather, the iuferior apples and windfalls may be made profitable, by making them into eider for vinegar. Even those who have a cider-house, furnished with a mill and press worked hy power, find it profitahle to keep a hand-mill and press, for the purpose of working up windfalls and inferior early fruit, before the cider-making season, on a large scale, hegins.

*Drying Fruit.*—The primitive way of drying apples, peaches, etc., exposed to the sun and air, also exposes it to inseets. Excellent dryers are now to he had, and at a cost which the inereased value of the dried fruit will meet in a siugle season. These dry with artificial heat rapidly, turning out a handsome light-colored produet. In drying in the old way for home use, protect the fruit from insects, hy netting, and provide some arrangement to dry hy the heat of the stove in a rainy day.

*Budding* is an important work at present, the most of the immense stock of peaeh-trees are hudded this month, as are the pear on quince, and the cherry on the Mahaleb. The preeise time depends upon the condition of the stock. The ties should be cut as soon as the buds have hecome firmly set, or have "taken," which will be known by their remaining plump and green and falling away of the leaf-stalk.

*Peaches* for shipping, should he gathered when mature, but hefore they hegin to soften. A single over-ripe peaeh, will render an otherwise choice crate quite unsalable. Step-ladders should he at hand.

*Pears* should always he ripened off of the tree, and must he sent to market hefore they soften. Half harrels are haudled with ease and safety, and this is a favorite paekage. It should be lined with white paper, and packed from the hottom. In no ease should the fruit he shaken from the trees. Various piekers are in use for reaching the speeimens which grow upon high and unhandy hranches.

*Planting.*—In those parts of the country where the autumns are long, fall planting is coming into favor. The ground can be more thoroughly prepared, and planting can go on more carefully and with greater eomfort. At this seasou raise a mound of earth about the newly set tree from 10 to 15 inches high; this will serve to keep water from settling about the roots, keep away mice, and serves as a support to steady the tree. Trees may he set out before the leaves fall, provided the wood is fully ripe, and the leaves are through with their work, and are only waiting for a hard wind to take them off In this condition the leaves are readily stripped off by hand. If trees are to be set in the spring, it is best to prepare the ground uow, and to secure the trees and heel them in, in a safe plaee, where water will not settle about and do injury.

### The Fruit Garden.

*Blackberries* and *Raspberries* are preferredly planted in the fall, as they make such an early start in the spring, that the shoots may get broken. Keep this year's eanes eut hack as directed last month.

*Currants and Gooseberries.*—Prune as soon as the leaves fall. Cuttings may he made at the same time, and planted at once in rows a few inehes apart. A mulch may he applied with good effeet.

*Grapes.*—In gathering choice elusters use the scissors which hold the bunch after it is cut, thus avoiding the touching of the berries, which removes the hloom and injures their appearance. Those to he packed in boxes should be placed in trays and kept in a eool plaee for a few days, until the skin toughens, when they are to be packed with great care, using 3 or 5 pound boxes. Pack by removing the hottom of the box. For the mildew and its remedy see artiele on page 348 of the present number.

*Strawberries.*—The beds should be kept clear of weeds. New heds may be made and set this month.

### Kitchen and Market Garden.

When a erop is removed, clean off the ground, and dispose of any refuse and weeds. If no other use is to be made of it, occupy it with flat turnips.

*Beets.*—Continue to hoe the late grown crop, until the tops are too large. Some thinning of the late sowings may be done for greens.

*Celery.*—Keep clear of weeds. If some is wanted for early use, straighten up the leaves and draw the earth to them with the hands. But around New York, this operation is not performed until next month, as the plants will now make their most rapid growth in the cool nights and warm days.

*Cabbages and Cauliflowers* are benefited by frequent hoeing, and a dressiug of guano or other eoncentrated manure is often applied with advantage.

*Corn.*—Dry a quantity for winter use—it never comes amiss. Save the best and earliest ears for seed. Cut up and eure the stalks for winter fodder as soon as the crop is off. Clean the ground.

*Cucumbers.*—Gather for pickles every second day. Let none ripen save those needed for seed, and they should be of the earliest, otherwise the vines die.

*Martynias.*—Gather for pickles while very tender.

*Melons* should be turned occasionally, as they ripen hetter. Remove the very latest ones as they set.

*Onions.*—Gather and store in a dry eool place.

*Sweet Potatoes.*—The largest may he removed from the rows for use, and the rest left to grow. Do not allow the vines to root at the joints.

*Spinach* for next spring is to he sown this month, in drills 15 inches apart. First thoroughly manure.

*Tomatoes.*—Destroy the large green worms. Make into catsup when fruit is abundant. Gather green fruit for pickles before frost comes and spoils them.

*Turnips.*—Hoe and thin the larger until prevented by growth of tops. The Strap-leaf sown before the middle of the month will usually make a erop.

*Weeds.*—Do not put them in the compost heap if already gone to seed. It is hest to burn them.

### Flower Garden and Lawn.

This is the season for the fullest show of out-of-door flowers, especially those in the larger beds.

*Cannas* are now heautiful, both as to rich foliage and flowers, espeeially when they are in a large bed.

*Dahlias.*—A large thrifty plant frequently needs several supports for its many loaded branehes, or they will otherwise break down and look shabby. Remove all blooms when they are past their prime.

*Chrysanthemums* deserve more general eultivation for their beauty and lateness; eoming when nearly all else has gone. They ean be taken up and potted before the frosts eome, and kept for several weeks in full bloom in the window or greenhouse. If liee are troublesome, give a wash with Tobaeeo Water.

*Geraniums* are fine late plants, and should make a bright showing during September. Cuttings for next year's stoek may be made during this month.

*Ornamental Trees and Shrubs* may be transplanted in autumn, after the leaves are ready to fall.

*Violets.*—Provide for late winter use by means of a eold frame; eover with leaves when frost eomes.

## Greenhouse and Window Plants.

Every thing should be in readiness to take in the plants as soon as the eold weather eomes....*Soil* and *Pots* should be at hand in suffieient quantity.... Remove the old *Sand* from the shelves, and use new to get rid of various pests....*Plants* for winter should be looked out for. Propagate geraniums and other bedding plants for a stoek for next year. *Hanging Baskets* should be filled early that the plants may get well established....When a slight frost is expected early in the season, provide a eovering for the choieest plants in the shape of a sheet, or even newspapers will do. It is wise to bring in the plants before they have been severely ehilled.

## Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, from our record kept daily during the year, show at a glance the transactions *for the month ending Aug. 11th*, 1879, and for the corresponding period last year:

**1.** TRANSACTIONS AT THE NEW YORK MARKETS.

| RECEIPTS. | *Flour.* | *Wheat.* | *Corn.* | *Rye.* | *Barley.* | *Oats* |
|---|---|---|---|---|---|---|
| 27 d's *this* m'th.. | 402,000 | 3,696,000 | 4,931,000 | 313,000 | 315,000 | 1,293,000 |
| 23 d's *last* m'th.. | 341,000 | 2,987,000 | 5,104,000 | 196,000 | 312,000 | 1,171,000 |

| SALES. | *Flour.* | *Wheat.* | *Corn.* | *Rye.* | *Barley.* | *Oats.* |
|---|---|---|---|---|---|---|
| 27 d's *this* m'h | 461,000 | 9,384,000* | 8,116,000* | 456,000 | —— | 1,451,000 |
| 23 d's *last* m'h | 456,000 | 8,148,000* | 8,439,000* | 289,000 | —— | 1,393,000 |

* Including sales for forward delivery.

**2.** *Comparison with same period at this time last year.*

| RECEIPTS. | *Flour.* | *Wheat.* | *Corn.* | *Rye.* | *Barley.* | *Oats.* |
|---|---|---|---|---|---|---|
| 27 days 1879.. | 402,000 | 3,696,000 | 4,931,000 | 313,000 | 345,000 | 1,293,000 |
| 27 days 1878.. | 361,000 | 4,647,000 | 4,384,000 | 251,000 | 294,000 | 1,213,000 |

| SALES. | *Flour.* | *Wheat.* | *Corn.* | *Rye.* | *Barley.* | *Oats.* |
|---|---|---|---|---|---|---|
| 27 days 1879.. | 461,000 | 9,384,000 | 8,116,000 | 456,000 | —— | 1,451,000 |
| 27 days 1878 | 458,000 | 6,259,000 | 6,411,000 | 437,000 | —— | 1,507,600 |

**3.** *Stock of grain in store at New York.*

| | *Wheat.* bush. | *Corn.* bush. | *Rye.* bush. | *Barley.* bush. | *Oats.* bush. | *Malt.* bush |
|---|---|---|---|---|---|---|
| Aug. 9, '79.. | 1,683,000 | 1,313,000 | 99,650 | 45,100 | 351,400 | 160,000 |
| Aug. 12, '78.. | 1,127,000 | 598,750 | 62,650 | 203,200 | 472,400 | 137,000 |

**4.** *Exports from New York, Jan. 1, to Aug. 10.*

| | *Flour.* bbls. | *Wheat.* bush. | *Corn.* bush. | *Rye.* bush. | *Barley.* bush. | *Oats.* bush. | *Peas.* bush. |
|---|---|---|---|---|---|---|---|
| '79.. | 1,814,000 | 28,135,000 | 21,412,000 | 2,607,000 | 106,000 | 369,000 | 241,000 |
| '78.. | 1,508,200 | 27,101,200 | 18,239,900 | 2,561,900 | 1,515,150 | 2,086,000 | 306,100 |

**5.** *Tide-water Receipts at Albany, from opening of navigation to July 31:*

| | *Flour.* bbls. | *Wheat.* bush. | *Corn.* bush. | *Rye.* bush. | *Barley.* bush. | *Oats.* bush. | *Malt.* bush. |
|---|---|---|---|---|---|---|---|
| '79.. | 3,000 | 6,963,400 | 5,636,800 | 712,400 | 15,700 | 570,800 | 198,900 |
| '78.. | 3,100 | 9,856,000 | 10,114,000 | 725,000 | 304,000 | 2,221,000 | 197,000 |
| '77.. | 3,100 | 1,534,700 | 8,385,100 | 192,900 | 389,700 | 960,300 | 277,500 |
| '76.. | 13,700 | 7,597,000 | 2,565,000 | 327,000 | 114,500 | 2,791,200 | 365,500 |
| '75.. | 27,200 | 7,504,600 | 1,932,200 | 68,700 | —— | 1,023,200 | 456,500 |

A brisk business has heen reported since our last, in the Breadstuff line, especially in Wheat and Corn, but at lower and irregular prices. The offerings of Wheat have been on a much more liberal scale, largely on speculative account, and in good part of new crop, leading to a sharp deeline in values of both Spring and Winter grades. At the reduced figures, the dealings have been very extensive, for shipment, as well as for speculative purposes; elosing weak. The later foreign advices have heen of an unfavorable tenor, and have tended to depression. Corn has been more sought after toward the close, and has shown more steadiness. Rye has been attracting mueh more attention from export buyers, leaving off more firmly. Oats have heen moderately active, but unsettled, closing with more steadiness, particularly for White, which are most wanted by the local trade. Flour wound up heavily, on a more urgent offering, and comparatively moderate inquiry.....Provisious fell off materially, and closed in favor of purehasers, on a moderate movement....Cotton was quoted lower, and weak at the close, on a restricted husiuees....Hops met with a readier sale at advaneed priees....Wool ruled somewhat eheaper, on a freer offeriug of domestie product, and a comparatively tame market....Naval Stores and Petroleum have shown little animation, and have heen quoted heavy....Hay and Straw have been in good request, and quoted stronger....Ocean freights have heeu decidedly more active, and quoted higher than before. The Grain movement has been of unusual magnitude.

CURRENT WHOLESALE PRICES.

| | July 11. | Aug. 11. |
|---|---|---|
| FLOUR—Super to Extra State | $3 50 @ 4 50 | $3 30 @ 4 75 |
| " Super to Extra South'n. | 3 50 @ 6 75 | 3 30 @ 6 75 |
| " Extra Genesee | 4 60 @ 6 25 | 4 75 @ 6 25 |
| " Superfine Western | 3 50 @ 3 90 | 3 30 @ 4 15 |
| " Extra Western | 3 90 @ 8 75 | 4 25 @ 8 75 |
| " " Minnesota | 4 00 @ 8 25 | 4 25 @ 8 00 |
| RYE FLOUR, Superfine | 2 90 @ 3 65 | 3 10 @ 3 90 |
| CORN-MEAL | 2 00 @ 2 55 | 2 10 @ 2 75 |
| OAT MEAL, ℔ bbl | 2 75 @ 6 00 | 2 75 @ 6 30 |
| WHEAT—All kinds of White. | 1 05 @ 1 21 | 1 00 @ 1 15 |
| " Red and Amber | 1 00 @ 1 22 | 90 @ 1 09½ |
| " Spring | 78 @ 1 15 | 75 @ 1 03 |
| CORN—Yellow | 43½@ 52½ | 46 @ 56 |
| " White | 45½@ 52 | 47 @ 55 |
| " Mixed | 41 @ 45¾ | 44 @ 46½ |
| OATS | 37 @ 46 | 32 @ 41 |
| RYE | 61 @ 65 | 63 @ 68 |
| BARLEY | Nominal. | Nominal. |
| HAY—Bale, ℔ 100 lbs | 35 @ 85 | 45 @ 85 |
| STRAW, ℔ 100 lbs | 35 @ 65 | 35 @ 65 |
| COTTON—Middlings, ℔ lb | 12¼@ 12⅜ | 11⅛@ 11⅜ |
| HOPS—Crop of 1878, ℔ lb | 6 @ 13 | 8 @ 18 |
| " " 1877, ℔ lb | 3 @ 5 | 3 @ 5 |
| " olds, ℔ lb | 2 @ 3 | 2 @ 3 |
| FEATHERS—Live Geese, ℔ lb | 35 @ 47 | 35 @ 47 |
| SEED—Clover, West. & St. ℔ lb | Nominal. | Nominal. |
| " Timothy, ℔ bushel | Nominal. | Nominal. |
| " Flax, ℔ bushel | Nominal. | 1 37½@ 1 42½ |
| TOBACCO, Kentucky, &c., ℔ lb. | 2½@ 11½ | 2½@ 12 |
| " Seed Leaf, ℔ lb | 5 @ 40 | 5 @ 40 |
| WOOL—Domestic Fleece, ℔ lb | 20 @ 40 | 18 @ 40 |
| " Domestic, pulled, ℔ lb | 18 @ 37 | 17 @ 37 |
| " California | 10 @ 20 | 10 @ 20 |
| TALLOW, ℔ lb | 6 @ 6⅛ | 5¾@ 5⅞ |
| OIL-CAKE—℔ ton | 29 00 @29 50 | 28 00 @ — |
| PORK—Mess, ℔ barrel | 9 50 @10 25 | 8 75 @ 9 20 |
| " Extra Prime, ℔ barrel | — @ — | 8 25 @ 8 50 |
| BEEF—Extra mess | 10 50 @11 50 | 10 50 @11 50 |
| LARD, in trcs. & bbls, ℔ 100 lb | 6 10 @ 6 75 | 5 70 @ 6 20 |
| BUTTER—State, ℔ lb | 4 @ 15½ | 5 @ 17½ |
| " Western, poor to f'cy, lb. | 4 @ 15½ | 5 @ 17½ |
| CHEESE | 1 @ 6 | 2 @ 5½ |
| EGGS—Fresh, ℔ dozen | 10 @ 13 | 9 @ 13½ |
| POULTRY—Fowls, ℔ lb | 9 @ 13 | 9 @ 13 |
| " Chickens, ℔ lb | 16 @ 25 | 12 @ 17 |
| " Roosters, ℔ lb | 5 @ 7 | 5 @ 8 |
| Turkeys—℔ lb | 9 @ 12 | 13 @ 17 |
| Geese, ℔ pair | 87 @ 2 00 | 1 12 @ 2 00 |
| Ducks, ℔ pair | 40 @ 60 | 45 @ 60 |
| Capons, ℔ lb | 20 @ 25 | 20 @ 25 |
| WOODCOCK, ℔ pair | — @ — | 60 @ 75 |
| SNIPE, per doz | 40 @ 2 25 | — @ — |
| PIGEONS, ℔ doz | 35 @ 2 00 | 25 @ 1 75 |
| PLOVER, ℔ doz | 1 75 @ 2 00 | — @ — |
| APPLES, ℔ barrel | 1 00 @ 2 50 | 1 00 @ 3 00 |
| PEARS, ℔ bbl | — @ — | 1 50 @ 3 50 |
| " ℔ crate | — @ — | 1 25 @ 2 75 |
| STRAWBERRIES, ℔ quart | 5 @ 11 | — @ — |
| CHERRIES, ℔ lb | 4 @ 8 | — @ — |
| RASPBERRIES, ℔ qt | 2 @ 7 | — @ — |
| GOOSEBERRIES, ℔ bushel | 1 50 @ 1 75 | — @ — |
| CURRANTS, ℔ lb | 6 @ 10 | 5 @ 10 |
| BLACKBERRIES, ℔ qt | 4 @ 14 | 3 @ 7 |
| WHORTLEBERRIES, ℔ qt | 5 @ 8 | 2 @ 4 |
| APRICOTS, ℔ quart | — @ — | 10 @ 20 |
| PEACHES, ℔ half bush. crate. | 1 50 @ 4 00 | 75 @ 1 25 |
| " ℔ basket | — @ — | 20 @ 1 00 |
| PLUMS, ℔ qt | 4 @ 12 | — @ — |
| POTATOES, ℔ bbl | 1 00 @ 3 50 | 75 @ 1 75 |
| " Sweet, ℔ bbl | 2 50 @ 3 75 | 3 00 @ 4 00 |
| TURNIPS ℔ bbl | 75 @ 1 25 | 75 @ 1 00 |
| " white, ℔ 100 bunches. | 1 00 @ 2 50 | — @ — |
| TOMATOES, ℔ box | 1 00 @ 1 50 | 50 @ 75 |
| RADISHES, new ℔ 100 bun | 15 @ 35 | — @ — |
| BEANS—℔ bushel | 1 00 @ 2 85 | 1 15 @ 2 50 |
| PEAS—Canada, in bond, ℔ bu | 72 @ 75 | 70 @ — |
| " new, ℔ bag | 75 @ 1 00 | 1 25 @ 1 75 |
| STRING BEANS, ℔ bag | 50 @ 1 25 | 75 @ 1 50 |
| BROOM-CORN | 2½@ 6½ | 2½@ 6½ |
| CARROTS, ℔ 100 bunches | — @ — | 1 00 @ 2 00 |
| BEETS, new, ℔ 100 bunches | 1 00 @ 2 00 | 1 25 @ 2 00 |
| CABBAGES—℔ 100 | 2 00 @ 5 00 | 2 00 @ 6 00 |
| CAULIFLOWER, ℔ doz | 75 @ 3 50 | 1 00 @ 4 00 |
| ONIONS—℔ bbl | 3 00 @ 4 00 | 2 50 @ 3 25 |
| " ℔ crate | 1 00 @ 1 75 | — @ — |
| SQUASH, ℔ bbl | — @ — | 50 @ 75 |
| CUCUMBERS, ℔ 100 | — @ — | 25 @ 50 |
| WATERMELONS, ℔ 100 | 15 00 @30 00 | 5 00 @25 00 |
| MUSKMELONS, ℔ bbl | — @ — | 50 @ 2 00 |
| EGG PLANTS, ℔ bbl | — @ — | 1 50 @ 2 00 |
| OKRA, ℔ 100 | — @ — | 12 @ 18 |

## New York Live-Stock Markets.

RECEIPTS.

| WEEK ENDING | *Beeves.* | *Cows.* | *Calves.* | *Sheep.* | *Swine.* |
|---|---|---|---|---|---|
| July 14 | 13,590 | 81 | 5,866 | 32,828 | 21,237 |
| July 21 | 12,948 | 211 | 4,387 | 36,163 | 21,052 |
| July 28 | 14,143 | 202 | 4,564 | 35,881 | 17,657 |
| Aug. 4 | 11,140 | 253 | 3,416 | 28,597 | 17,835 |
| Aug. 11 | 12,290 | 144 | 3,825 | 31,266 | 18,974 |
| *Total for* 5 *Weeks* | 64,111 | 891 | 22,058 | 164,735 | 96,755 |
| do. *for prev.* 4 *Weeks* | 45,648 | 287 | 18,850 | 142,964 | 109,387 |

| | *Beeves.* | *Cows.* | *Calves.* | *Sheep.* | *Swine.* |
|---|---|---|---|---|---|
| *Average per Week* | 12,822 | 178 | 4,411 | 32,947 | 19,351 |
| do. do. *last Month* | 11,412 | 72 | 4,712 | 35,741 | 27,347 |
| do. do. *prev's Month* | 10,648 | 65 | 5,306 | 31,706 | 34,804 |

The prices for the past five weeks were as follows:

| WEEK ENDING | *Range.* | *Larger Sales.* | *Aver.* |
|---|---|---|---|
| July 14 | 7 @10½c. | 8½@ 9¼c. | 8⅜c. |
| July 21 | 6 @10¼c. | 8¼@ 9½c. | 8⅜c. |
| July 28 | 6½@10¼c. | 8 @ 9¼c. | 8½c. |
| Aug. 4 | 6½@10¼c. | 8¼@ 9½c. | 8⅜c. |
| Aug. 11 | 6¾@10¼c. | 8¼@ 9¾c. | 8⅝c. |

**Beeves.**—The market has been very irregular, the changing supply influeneing trade and priees almost every day. The week ending July 28, there were reeeived the largest number of beeves ever known in this market, and a very unsettled business resulted. An improvement was made after a falling off in receipts of 3,000 head in one week, but priees remain weak, and but for the export demand they would undoubtedly fall off considerably. The elosing business was dull and unsettled, with a scarcely successful effort to advance prices. Sales were made at the close at 7@7¾c. for Colorados, 55 lbs. to the cwt.; native steers of same class at 8c. ℔ lb; good to prime beeves at 8¾@9½c., and extra, 56 to 57 lbs. to the cwt., at 9¾@10¼c.....**Cows.**—The market has heen overstocked, poor cows have sold for $20, and good ones have heen slow of sale at $40@$50 per head....**Calves.**—The husiness in veals has been ehangeable and irregular. With an alternate surplus and scarcity of stock, prices have fallen off or advaneed; a firm feeling and higher prices are to be noted at the close; buttermilk calves sold at 2½c. ℔ lb., grass and fed calves at 3¼@4c. ℔ lb, milk veals at 4½@6c., and extra at 6¼@6½c. ℔ lb, all for live weights.....**Sheep and Lambs.**—As usual, prime stoek have been in demand at full prices, while common have been hard to dispose of at low prices, even with unusually low receipts. Prime sheep were in demand, as we elose our report, at full priees, viz.: 4½@5¾c. ℔ lb; poor sheep sold at 3½@4¼c. ℔ lb. Heavy sheep for export sold at 5e@5¾c. ℔ lb, and lambs brought 4½@6e. ℔ lb, all for live weights....**Swine.**—An advance in Chicago strengthened prices here, and we note a strong market for live hogs at 4⅛@4¼c. ℔ lb, with an upward tendency; $4.30 per 100 was paid for 175 to 200 lb. Western hogs.

**The Horse Market.**—Sales have heen light, without change in prices. Street car horses have sold at $115@$130 per head; farm horses at $100@$140; heavy draft horses at $200@$350; coach horses have sold at $500 to $800 per pair; Indian ponies and Shetlands are offered in excess of the demand, and there are no sales at present. Several lots of horses are now ready for or in course of shipment for export.

### Prices of Fertilizers.

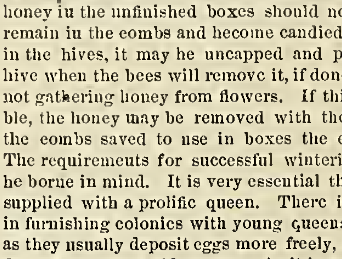
| | |
|---|---|
| Nitrate of Potash (95 per eent.), per lb. | 9 @9½c. |
| Sulphate of Potash (potash 41 per eent) per lb. | 3 @3¼c. |
| do. do. (potash 27½ per eent) per lb. | 1½@1¾c. |
| German Potash Salts (potash 12 to 15 p. e. p. ton. | $15.00@18.00 |
| Muriate of Potash (potash 50 per cent), per lb. | 2 @2¼c. |
| Nitrate of Soda, per lb. | 3¾c.@4¼e |
| Sulphate of Ammonia (25 per eent.), per lb. | 4¼c.@4½c. |
| Dried Blood (ammonia 13 per cent) per ton | $40.00@45.00 |
| No. 1. Peruv. Guano 10 p. et. ammonia, standard, ℔ ton | $56.50 |
| do. do. Lobos, do. do. do. | 47.50 |
| do. do. guaranteed, ℔ ton, cargo K | 56.00 |
| do. do. rectified, per ton, 9.00 p. e. | 65.00 |
| do. do. do. do. 3.40 p. e. | 51.00 |
| Soluble Pacific Guano, ℔ ton | 45.00 |
| Excelsior Fertilizer Works, Fine Ground Raw Bone, | 55.00 |
| Mapes' Complete Manure (clay soils) per 1,000 lbs. | 25.00 |
| do. do. do. (light soils) per 1,000 lbs. | 25.00 |
| do. do. do. "A" Brand, (wheat) ℔ 1,000 lbs. | 20.00 |
| do. Bone, strictly pure, meal ...per ton | 42.00 |
| do. do. do. medium...... do. | 36.00 |
| do. do. do. dissolved..... do. | 42.00 |
| Stockbridge Rye Manure, per ton | 45.00 |
| " Wheat do do | 45.00 |
| " Seeding Down Manure, per ton | 40.00 |
| " Turnip Manure, per ton | 50.00 |
| Bowker's Wheat Phosphate, per ton | 40.00 |
| Baugh's Raw Bone Phosphate, per ton | 33.00 |
| Baugh's Manure for Tobacco and Grain, per ton | 45.00 |
| Walton, Whann & Co.'s Raw Bone Phosphate | 40.00 |
| Gypsum, Nova Scotia, ground, per ton | 8.00 |

## Bee Notes for September.

BY L. C. ROOT, MOHAWK, N. Y.

In most locations, the general honey yield is now over. If partly-filled boxes yet remain upon the hive, they should he removed, and all upward ventilation prevented. If extra combs have been supplied for extracting, they should be taken out, and the bees confined to the combs in the brood-nest. These combs must be watched, and if the moth-worm begins work in them they should be smoked with brimstone. If the two-story hive has heen used for extraeting, the part containing the queen and brood may be placed at the top, and the one with empty combs allowed to remain below, until later in the season, where the bees may protect them from the moth. The honey iu the unfinished boxes should not be allowed to remain iu the combs and hecome candied. If it is needed in the hives, it may he uncapped and placed upon the hive when the bees will remove it, if done when they are not gathering honey from flowers. If this is not desirable, the honey may be removed with the extractor and the combs saved to use in boxes the ensuing season. The requirements for successful wintering should now he borne in mind. It is very essential that each hive he supplied with a prolific queen. There is an advantage in furnishing colonies with young queens at this season, as they usually deposit eggs more freely, and continue to do so longer than old queens. As it is extremely desirable that each colony be supplied with a large number of young bees when it goes into winter quarters, the importance of using every means to secure them is apparent.

CURVED COMBS.—Wm. L. Hyde, Lyme, Ct., says: "I have some combs that are bent almost square. Can they



be straightened out and put into frames without injury?"...... Most crooked combs can be straightened by the use of transferring sticks. Where they are bent at a right angle, or nearly so, they should he cut apart, and the edges put together, as in the engraving.

WORMS' NESTS.—"Will worms' nests in the hive do any harm to bees? The worms are of a browu color, and about half an inch long."....These are the larvæ of some other insect than the Wax-moth. Remove as far as practicable, and if the combs containing them are placed in a strong colony, the hees will probably eject them.

THE DOGWOOD.—"Is the Dogwood tree valuable for pollen or honey?"...."Dogwood" iu this section is uot.

# Announcement!

The tide HAS turned. The waves of Prosperity are again rolling in, and spreading over the entire land. The good old AMERICAN AGRICULTURIST Ship will maintain its accustomed place upon the Crest of the highest wave, bearing its most valuable freight of good things to all our own domains, and to many other lands.....The Publishers propose to take the tide at its flood, and

**Begin to-day, Sept. 1, 1879,**

to receive passengers for the year **1880,** giving to all equal advantages, Cabin, State Room, first-rate fare, etc, etc., etc.

## VOLUME XXXIX,

covering the entire year 1880, will be of unprecedented value and usefulness to all classes. The Terms will remain at the present very low Rates, viz., $1.50 a year for single subscribers, with postage prepaid by the Publishers to any part of the United States and British America.

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The *American Agriculturist* is valuable EVERYWHERE, in City, Village, and Country. It competes with nothing else. It differs from and surpasses all other similar journals, in the number and variety of its Engravings, illustrating a thousand and one useful labor-saving, labor-helping, contrivances and conveniences. No matter how many other local journals one has—the more the better—he wants the *American Agriculturist* in addition, if not *first* of all.—Volume **39** (for 1880) will surpass all previous volumes in utility, in variety, in value. Taking into account its size, its beauty, its multitude of Engravings, its careful Editing, its reliability, its exposure of Humbugs, etc., it is the *cheapest journal in the world!*

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The Subscription Books for 1880 open now. The Entries and Terms are for volume 39 (the entire year 1880). **BUT it will cost no more for New Subscribers to**

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To aid our Friends in securing subscribers not now on our Books, and to assist them in the early and rapid formation of Premium Clubs, so that they may obtain their premiums in advance of the Holidays, the Publishers will begin at once to receive subscriptions for 1880, and enter the names as fast as received; and they will send to the *New* Subscribers for 1880 all numbers of this year published after such names come to hand, **without extra charge.**

# A Great Premium List.

**A splendid assortment, including HUNDREDS of Valuable Articles, Useful, Interesting, Amusing, for all classes, old and young, to be PRESENTED to those who send new subscribers to the *American Agriculturist*—for clubs of two, three, four, and up to hundreds. Most valuable returns for small efforts.**

The Publishers take pleasure in announcing that they have prepared by far the *largest, best,* and *most varied assortment* of excellent Premiums, that they have ever offered to the public. These articles are selected to meet the wants and wishes of all, and will be suited to all the members of the family. They will be offered *on far more liberal terms than ever before,* in accordance with the times. Engravings and descriptions of these articles are prepared, and will be issued on a large, beautiful sheet of 20 or more pages, with fine cover, early in September. As soon as ready, copies will be sent free to all previous applicants (and future ones thereafter). A specimen copy of the *American Agriculturist,* when desired for securing Subscribers, with a copy of the Premium List also, will be sent on receipt of two three-cent Postage-Stamps, and the address of the applicant.

### Begin Sending Names for the Premiums at Once.

The Fairs are now being held, and these furnish a capital opportunity to make up premium clubs. There will be good premiums for two, three, or four names, and upwards to any number.

Please state it when any name is designed for the premium list, and give your own name and address, and it will be entered to your credit in the Premium Record. You can then, at any time, select any premium desired in accordance with the number of subscribers sent in up to any date.

# A Great Help

*to forming Premium Clubs NOW will be found in the above offer to enter the new names at once without extra charge.*

*containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of room elsewhere.*

**Clubs** can at any time be increased by remitting for each addition, the price paid by the original members; or a small club may be made a larger one at reduced rates, thus: One having sent 6 subscribers and $7, may afterwards send 4 names more and $3, making 10 subscribers for $10.00; and so for the various other club rates.

**Bound Copies** of volume 37, and of every previous volume back to Vol. XVI. (1857), neatly bound, with gilt backs, Index, etc., are supplied at $2 each (or $2.30 if to be sent by mail). See Publishers' Notes, 2d cover page.

**Read the Advertising Columns.**—Letters are daily received by the editors, asking where pigs, fowls, seeds, fertilizers, machinery, etc., can be procured. We consider all the information of this kind that is given in the advertising pages sufficient, if those needing anything will only look there; and can not find room to repeat what is already plainly told elsewhere. Every page of the *American Agriculturist,* including the covers, is interesting reading, and should all be carefully examined every month. In addition to looking after what one may want, the reading of what others have to say, in offering their wares, etc., starts up some new idea in the mind of the reader.—When writing to any advertiser, always tell him in what paper his advertisement was seen.

**The German Edition.**—All the principal articles and engravings that appear in the *American Agriculturist* are reproduced in the German edition. Besides these, there is a special department, edited by an eminent German cultivator. Our friends can do us a good service by calling the attention of their German neighbors and friends to the fact that they can have the paper in their own language, and those who employ Germans will find this Journal a most useful and acceptable present.

**The "School-Master is Abroad."**—In recent travels through several Western States, we were struck with the fact that in cities and villages the most imposing, well constructed, attractive buildings that meet the eye are the Public Schools. This is the case generally from Wyoming and Colorado eastward. Few villages of 2,000 to 3,000 population, in the older States, have as fine public school structures as that seen in Laramie, almost on the summit of the Rocky Mountain range (at an elevation of over 7,000 feet), and like Institutions everywhere abound all over the West—showing unmistakably that the enterprising people who have swarmed from the parent hives have carried with them a full appreciation of the benefits of education. It argues well for the future of our free government to see such ample provisions for making the next generation of future governors of the country—the people—*intelligent* voters.

**How the Arrow Heads were Made.**—It has always been a mystery how the Indians made their arrow heads. An antiquarian student has put himself in the place of these ancients, and found that by the most skillful chipping of one flint with another, nothing like the shape or surface of the arrow head could be produced. By chance, in trying various devices, he used pressure with a stick, when the peculiar, and characteristic surface was readily produced by this process, of "flaking" by pressure.

**The National Agricultural Congress** will hold its next (semi-annual) session at Rochester, N. Y., on the 15th inst. The early growth of this Association has been slow, but it has shown persistence, and we hope that the agriculturists of the country will take hold and make it what its title indicates it should be—a truly national body. That such an association is needed, we think that there can be no doubt, and it should be the endeavor of those who have carried it so far, to increase its usefulness by enlisting as large a number of farmers as possible in its ranks. The President is Doct. Thos. P. Janes, Atlanta, Ga., the efficient Commissioner of Agriculture of Georgia. Of Vice-Presidents there is one from each State; the Secretary is Jonathan Periam, Chicago, Ill., and the Treasurer, Ezra Whitman, Baltimore, Md. One can become a member by sending $3 to the Treasurer, and this entitles him to a copy of the Transactions. There seems to be a capital chance here to do something for the good of the agriculture of the country. Let us do it.

**Our Fair List** will be found upon pages 361 and 362. The value of a List of Fairs, depends of course upon its accuracy, and the only method by which this can be secured, is to give the dates and places from official sources. With this view, we, some months ago, requested the Secretaries of the various societies, to send us their announcements, as soon as their dates were fixed upon. A very much larger number have complied with this request than in any former year, and for this, these officers will please accept our thanks. Kansas, which is far ahead of some older States, in everything that relates to agriculture, sends out through the most efficient Secretary of her State Board of Agriculture,— the Hon. Alfred Gray, a list of all the fairs to be held in the State; an example commended to other State Boards of Agriculture. Where official information has not been furnished, we have taken the announcements, as given in the leading papers of the States, etc. It will be noticed, that in some cases, we have given dates in August; this is done to show that these fairs have already taken place, and to save trouble in looking up the date. To our readers, we say—go to your local fair, by all means, and to as many more as may be. Not only go, but exhibit something—your best, whatever it may be.

**To Those Who Send Us Papers,** containing an article to which they would call our attention, we must request that they direct the paper to "The Editor," or mark the article very conspicuously,—in fact it is better to do both. If a paper is merely directed to the *American Agriculturist*, or to the Orange Judd Company, the clerk who opens the paper mail, can not know that it is not one of the regular exchanges.

**Root Cutters.**—"V.," Phillipsburg, N. J., sends sketches, (see figs. 1 and 2,) of knives for cutting roots for a cow, either in a tub or a box. A bushel may soon

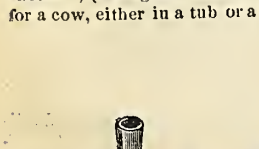


Fig. 1.

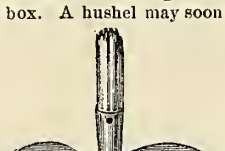
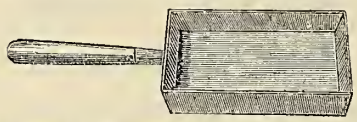


Fig. 2.

be cut up by using one of these knives, fixed upon a shovel or spade handle, as shown in the second figure.

**We Give It Up!**—We really do not understand it. It is quite beyond our powers of guessing, why people should do so. Here is a strawberry grower who sends a carefully written letter, the "hand" being neater and plainer than often comes to us. He tells us his method of culture, and complains that for three or four years he has had poor crops, and says: "Now being the time to plant, I would like to know what you think is the trouble and how to remedy it."—We could have answered these questions at once on a postal card; "now being the time of planting," he wants his answer "now"—but he merely signs his letter "A. W. L." !!....Another is in want of a book of recipes, he gives us in full his idea of the kind of book he wants, and finishes his letter by "J. H., City." While an answer to this, being purely personal, would be out of place in our columns, we would have willingly sent it by mail—but "J. H., City," is scarcely definite enough. We have repeated it so often that it should be understood, that letters or postal cards without full names, merely represents time and trouble lost by the sender. We take "A. W. L." and "J. H." as examples of this most unaccountable omission, which is of almost daily occurrence. Why do people write careful letters and then omit their names?—"We give it up."

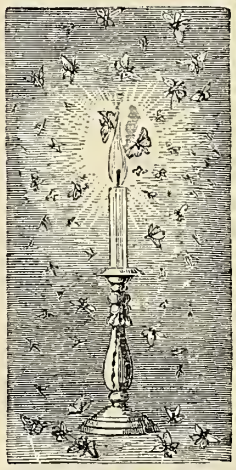
**Feeding Calves.**—Young calves will thrive far better if a mouthful or two of mixed food be given to them occasionally. When running in a pasture by themselves, or with a few dry cows for company, they may be fed by the means of a small-handled box shaped in the



manner shown in the engraving. With a pound or two of meal (bran, cotton-seed, and linseed, in equal parts), in the box, the owner may go among his calves (lambs may be treated in the same way), and call them to him, giving each one a mouthful or a nibble in turn. This will tame the young things as well as help their growth.

**Notes on Fences.**—The farm fences of the United States, are estimated to cost 1,350,000,000 dollars, and require 250 millions of dollars, annually, to keep them in order. Besides the direct cost of fences, the land which they occupy, and render worthless, is an important consideration. The zig-zag rail fences, with stakes and riders, on an ordinary farm, occupy five per cent of the land, or five acres in every hundred. In view of this, a straight fence, other things being equal, is the cheapest. The wire fences of various styles, now used, are to be commended as economizing space, and being durable.

## Sundry Humbugs.



In writing of the humbugs of which farmers in particular are made the victims, we have often repeated the caution: "*Farmers, be careful what you sign,*" and have given cases in which farmers incurred heavy losses from not observing this caution. This has caused several to write us to this effect—we put the substance of several letters in our own words. "Why do you take so much trouble to caution farmers about signing their names? If any farmer is foolish enough to sign his name to any paper without knowing what he signs, he deserves to suffer for it, and to lose his money." Such a view of the matter is all very well for those who have a sufficient knowledge of the wickedness of the world to be always on their guard against "the ways that are dark and the tricks that are vain;" but those who write in this manner have very little knowledge of the average farmer, as we find him the country through. The very fact that

THE AVERAGE FARMER IS HONEST

himself, and consequently unsuspecting, makes him all the more liable to be selected as a victim by sharpers. Those who write thus must know several farmers of this kind. Farmer Williams, for example, is a farmer, and nothing else; his farm is his world. His father was a farmer before him, and his chief hope is that his oldest son may be a farmer to follow him. His family circle is to him his foretaste of Heaven, and his farm and his family the objects to which he gives his best thoughts, and for which he works so long as there is any work in him. To such a man, the idea of wronging another is just as foreign as the idea of murdering his wife and children. He couldn't measure his grain in a false measure, or weigh his butter with light weights. Being without guile himself—it being something utterly foreign to his nature—we do not think it all remarkable, but altogether to his credit that he does not suspect wrong in others. Therefore,

WHEN HE IS ASKED TO SIGN HIS NAME,

such a man thinks of no wrong. That enormity which will induce him to put his name to what he supposes to be an order for some article, but which turns out to be a note, it is something of which he has no idea. We do not blame the honest farmer because he is defranded, but regret that he places too much confidence in strangers. It is not because the farmer is ignorant, that he is so often selected as the victim of sharpers, but because, *being honest himself*, he is unsuspicious of others. With this view of the matter, we begun our warnings: "*Farmers, be careful what you sign,*" which in view of recent developments we have changed to:

FARMERS, DO NOT SIGN YOUR NAME TO ANYTHING.

An honest man stands no chance against dishonest sharpers, and it is safer for farmers to forego all prospective profits from any transaction than to risk the troubles that may follow the signing of any paper whatever. Travelling agents come along and offer Farmer Williams great inducements to take the sale of some implement or gimcrack for his neighborhood. We say, Farmer Williams, don't. Stick to your farming, and don't undertake the sale of patent spring beds, new mowing machine knife grinders, new and wonderful plants, marvellous oats, or any other implement or seed whatever. The glib-tongued travelling agents will show you that you must have their things for yourselves, and to sell to your neighbors. Let these all alone.—Those who think it serves the farmer right if he suffers because he is inveigled into signing what is offered as a mere receipt, but turns out to be a note, do not know the farming community so well as we do. Not only are farmers made victims of this fraudulent note business, but there are several

HUMBUGS ESPECIALLY DESIGNED FOR FARMERS,

founded upon farm operations, or in the shape of trees and other fruit plants, presented with claims as to wonderful productiveness or great superiority in other respects. In this latter class we have had "self-pruning grape vines"; strawberries that grow upon "bushes"; peaches budded on the "Canada Willow", and others free from all disease, and other things, of like character. The latest special fraud upon farmers is *William V. Horton and his Stump Clearer.* William V. is in New York, in fact in Nassau St., and he advertiseth in the country papers to the following effect. William V. says:

"STUMPS!
REMOVED WITHOUT
BORING, BLASTING, OR BURNING.

By our process, NEW and old stumps can be effectually removed from the land the first three months at a cost of less than half a cent per stump. Enough material to kill and remove 250 large NEW stumps, with instructions to apply the same sent on receipt of $1.00. A boy ten years old can apply the material to kill and entirely remove from the land 250 large NEW stumps per day."

More than this, William V. sends out circulars which sets forth the excellence of this method of stump extracting in full. If one half these claims were true, the readers of the *American Agricutturist* ought to know it, especially as the head-quarters of the "Stump-puller" were not very far from our own office. The matter was of sufficient importance for one of our editoral staff to make a personal examination. He went to the place in Nassau St., and found the usual narrow stairways, the numerous offices, the array of motley signs, but no "Horton" or "Stump-puller." Then commenced a search up-stairs and down stairs; he was told that there was no Horton in the building; was informed that there was a Mr. Hoyt. At last, somebody recollected that a letter had been directed to a Mr. Horton on the floor below, and after much search, the

LOCAL HABITATION OF HORTON WAS FOUND.

We give our associate's report of his experience: "I found myself in the presence of a young and plump-looking man."—"What will you have sir," he said in a very welcoming tone.—"I wish to inquire for Mr. Horton," I said.—"William V?"—"Yes—the man who has a way to pull stumps fast."—"Well, he is not in [they never are]. He is out in Piedmont, New Hampshire [there is no such place in the Gazetter or P. O. Directory], but we do his business in his absence; and if there is anything special, can send it to him."—"I only called to inquire about the method of pulling stumps and see some of the material which you use, if it is some sort of chemical,"—Wm. V's. authorized agent then took me back into his little office and gave me a chair. He said: "The substance which we use is a white powder."—"I should like to see some, as a friend of mine is greatly troubled with stumps," I said, growing interested.—"Well, we have none it here to-day, we expect some every hour; our orders are supplied directly from the factory; our letters come here, and we open them and send them directly to the factory to be filled."--I thought I saw the *factory*, which stood near my chair, and it was *filled*. I felt so sure of it that no questions were asked on this point. "How is this powder applied?" I asked the sage of stump-killing.—"You drive two nails, one at the root of the stump, and the other at the top, and connect them by a wire, then a pinch of the powder (he showed me how to take it up with his hand), is put *right on* the head of the upper nail, and this produces a current of electricity, and in a short time, about three months, the *whole* of the interior of the stump disappears."—"That is quite wonderful, and it must be a great saving of labor, for we find it takes a large stump several years to rot down, and it is hard at the bottom."—"Yes, it is a great discovery and *invention*—you see it is *electricity* that does

it, and we do not know much about electricity."—I said, "that it was very true—lightning can perform many wonderful freaks," and spoke of the vivid lightning which we had during the last two days. There was a pause—a stillness for a second—and not caring to be interviewed as to *my* stumps, their number, locality, etc., I thanked the philosopher and withdrew. P. S.—He said "If the bark does not loosen in about seven days, it is best to put on more of the powder."

A STUMP, TWO NAILS, A WIRE, AND SOME POWDER!

What a stupid bumbug! But, by the way, William V., a friend of ours, within an hour of New York, sent you the money for some of your powder over two weeks ago. Why don't you send it?

We are glad to notice that several papers are taking an active part in exposing the

VARIOUS SWINDLES UPON FARMERS.

The "Utica Weekly Herald" and the "Watertown Despatch," both in N. Y. State, are deserving of special credit for their efforts in this direction. According to the "Despatch," rogues named Johnson Wood, M. V. Quick, and another, whose name is not known, have been operating in Jefferson Co. in behalf of a "Co-operative Fertilizer Co." These parties called on one M. O. Robbins, to make him an agent for the sale of a fertilizer which they claimed to have. Mr. Robbins gave them the following note:

SACKETT'S HARBOR, July 22d.

$150.00.

Six months after date I promise to pay to the order of myself One Hundred and Fifty Dollars, at the First National Bank at Watertown, for value received.

[Signed] M O. ROBBINS.

It was explained to Mr. R. that the note was of no value, being made to his order, until he signed it, which he need not do until he found the fertilizer perfectly satisfactory. After more talk of this kind, Mr. R. was shown the back of the note, on which was the following statement, to which the maker of the note was requested to put his name. It reads thus:

I hereby certify that I own and am worth in personal and real estate in the County of Jefferson, State of New York, $8,000 over and above all indebtedness, and that the within note is given for goods bought by me of the Co-operative Fertilizer Company, and the above is in full demands of every name and nature between said Company and myself up to date of this note.

[Signed] M. O. ROBBINS.

When Mr. Robbins had signed this mere statement, or "mere matter of form, you know," contract,

HIS NOTE WAS ENDORSED BY HIMSELF,

and he was held for the amount. This view occurred to Mr. Robbins all too late, but he started in pursuit, and fortunately found the swindlers at Utica, where he had them arrested. Whether they can be held, the "Herald" is in doubt. That journal states that others have been victimized in the same manner. Are we wrong in our caution:

FARMERS, DO NOT SIGN YOUR NAME TO ANYTHING?

The "Utica Herald," in reference to this matter, says it has "no sympathy" with those who become victims to such swindlers. It says:

It seems to be useless to warn farmers to keep out of all transactions of this kind with strangers. Every farmer can find well-known and trustworthy business men in their own town or in the nearest city, who will provide them with everything they require at reasonable rates, much cheaper than any travelling agent can afford to sell even if he is honest. Sensible people have lost all sympathy for the gudgeons who bite at every bait that shrewd men throw to them. Avarice is generally at the bottom of such bargains.

While we admit that there is some truth in the remarks of the "Herald," they are altogether too sweeping. We have given above a different view of the matter, and to the reasons there given, we may add

A CHRONIC INABILITY TO SAY "NO"

possessed by many good-natured people. While avarice may be the motive in some cases, we think that unsuspecting good-nature is accountable for many more.... Syracuse, N. Y., is said to be the headquarters of much of this kind of swindling. There is said to be a raid on foot from that place into Pennsylvania. *Pennsylvania Farmers, look out for the man with a churn.*

PURCHASING THE "QUEER."

As strange as it may appear, after the exposures that the *American Agriculturist* began long ago, and which have been taken up and followed by the daily papers, there will be persons who are foolish enough to be caught by the circulars of those who pretend to offer counterfeit money at about 10 cents on the dollar. We always feel glad when one of these chaps gets caught, for no honest person can have any dealings with those who offer, under various names, counterfeit bank bills. Simpletons go to buy, pay their good money for a parcel supposed to contain counterfeit notes—are hurried off through a pretended fear of the police, and when the victim gets in a place where he can examine his purchase, he finds no counterfeit money, but only a made-up parcel of paper. The latest victim is one O'Reagan, who keeps a hotel in New Brunswick, who came all the way to New York to buy counterfeit money—what did he intend to do with it?—and was put off with a bundle of kindling wood. The man was foolish enough to complain at one of the Police Courts. He received very little satisfaction, and went home, let us hope, a wiser, if not a better man. When people act upon the fact that nothing *worth* one dollar is ever sold for less than 100 cents, they will stand less chance of being swindled....A correspondent asks our opinion of an attractively advertised

GIFT BOOK SALE,

in which the purchaser of a book for a dollar, has a chance to draw all sorts of prizes. This so-called "sale" comes under the head of lotteries, and our opinion of the whole *breed*, no matter by what name it may be called, is too well known to need repetition. We advise all to keep clear of the lottery, no matter for what purpose it claims to be held, or whatever end it may have in view. If under a charter from any State—and many claims of this kind are fraudulent—so much the worse for the State. If under the management of any Generals, as some claim to be—so much the worse for the Generals; they add no respectability to the lottery, while their connection with it degrades them. Any General out of business, should be able to find some more respectable employment than that of "Manager" of a lottery.

VARIOUS MEDICAL MATTERS.

For several months past, the medical portion of our Humbug budget has shown but little novelty, but we now find, what is just as good as a novelty, that

OLD MOTHER NOBLE STILL LIVES,

or, at least, her wonderful "Healing Syrup" is still sent out, and that the lithographed circular of the man of the diamond-studded shirt-front, is still sent to induce parties to engage in the sale of the stuff. We have seen the time when, returning from a long voyage, New York harbor seemed like an entrance to a happy land; we have in foreign countries seen the American flag afloat, when it seemed the most beautiful thing we ever beheld—but what were these feelings to the emotions felt as we renewed our acquaintance with

OLD MOTHER NOBLE'S CIRCULAR.

The "view of the residence of Mrs. Deborah Noble"—that house, those fence, and dear old Debby herself coming down the road with a tremendous old *she* lalah—or perhaps a broomstick, is enough to awaken the finer feelings. In turning back the pages, we find that picture of "The Place where this Remarkable Discovery was Made," and it comes just as near bringing tears to our eyes as it did years and years ago. But what are these accessories as compared with the picture on the very firstest page of old Deb. herself. There she is—with the Bible—stated so in letters, according to the size of the book, about 6 inches long, and it rests upon a plank at least 6 inches thick—Debby is wiping her spectacles "on the edge of her apron," just as she used to do it, and her "daughter Abigail" has the same cup and spoon and everything is lovely. The story of old Debby Noble is not to be allowed to die out—at least not so long as there are people foolish enough to believe it.

"IS NOT THIS A HUMBUG?"

Is written upon several pamphlets sent out by "Medical Institutes," owners of "Restorative Remedies," Treatises for "Self Treatment" and the like. These pamphlets, of which we have several before us, all treat upon matters which we do not care to discuss in a paper read by the whole family. We can only say that they are pernicious in the highest degree. They all begin by exciting the fears of young men—and they seem to be published solely to reach these—and they lead them on, by adroitly written descriptions, to believe that their only hope of recovery is in taking some particular nostrum.

OUR IDEAS OF SUCH MATTERS,

have been stated so often, that they should be known to all but very recent subscribers. They may be summed up in brief: Do not undertake to medicate yourself. Do not take any secret preparation. Have nothing to do with a so-called "doctor" who publishes his cures. In short, let all of these chaps who send out pamphlets and circulars, severely alone. If a "retired physician" or a "former missionary" advertises to send free of cost a "prescription" for any kind of "weakness" or "debility," let that quack and his prescription alone. The "prescription" is advertised as "free," but, as we have shown again and again, it is only a dodge to sell *stuff*.

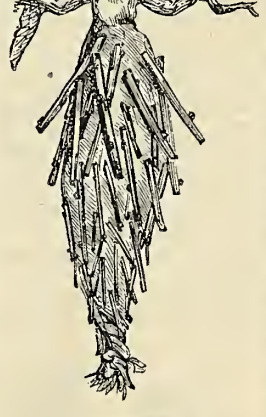
**Willows and Osiers.**—Many suppose that *Osier* is the general term for all basket-willows. This is a mistake, and one which has probably given the impression that willows could not be grown in this country. The Osier (*Salix viminalis*,) is the very poorest of the basket willows, fitted only for the coarsest work. Hence it is necessary for those who would grow willows, to look into the matter of quality, and plant the better kinds. It is a common notion that willows grow best on wet land. It may be that the plants will grow faster, but the best basket willows are grown on any good grain-land, and are injured by undue moisture in the soil.

**Cauliflower Seed.**—"O. C." But little seed of cauliflower is grown in this country, our summers being too hot for it. Those who do attempt to raise it, sow the seeds in July, and when the plants are large enough, set them out in rows, as if they were to grow a crop. By fall the plants will be partly grown, and they are then set in cold-frames, or placed in a cool cellar, with earth about their roots, the object being to preserve them in a dormant condition. In early spring, the plants are set out to complete their growth, flower, and produce seed.

**Stump Puller.**—"F. S.," Longlake, Ill. Stumps may be pulled out, if they are not too large, by the use of a long stout lever fastened to the stump by means of a chain and a hook, so as to give a twisting motion when the free end of the lever is pulled by a strong team. A stump puller, consisting of two chains and a lever, by which the chains are drawn up alternately, was described in the *Agriculturist* for September, 1871. (See page 338.)

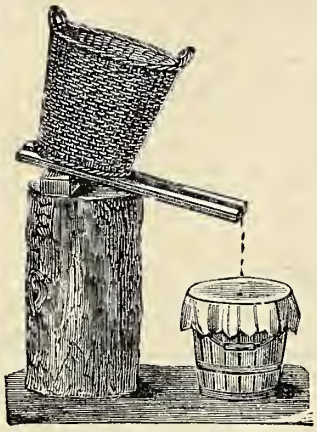
**Winter Pasture for Sheep.**—"J. W. D.," Limestone Co., Texas. Winter oats *may* be bad for sheep, but if so, it is probably because the sheep will eat too many of them when wet with dew, or when rusted, and thus become affected with indigestion and bloat. Any green crop, fed in winter, is more or less subject to the same objection; but rye is less succulent and rich than oats, and for this reason, perhaps, is more popular for winter pasturage in the Southern States. If caution be exercised to prevent over-eating, the only source of danger, oats may be sown, if otherwise more desirable.

**The Bag-Worm, Basket-Worm, or Drop-Worm.**—In summer we expect to recieve specimens of this insect. This summer they have been sent in unusual numbers, but hope this is an indication that our readers are more observing, rather than that the insect is unusually numerous. To give a brief history of the insect: In winter, various trees will be found bearing objects like that shown in the engraving. If these are examined, some will be found empty—the males having left them; others will contain numerous eggs, and the shrivelled remains of the female. These eggs hatch in May, the minute insects leave the case, fix themselves upon a leaf by their fore-feet, and with their bodies erect, tail upwards, begin to spin a case, and cover it with bits of leaf. As the insect grows, it increases the size of the case, and when large enough, this hangs downwards, instead of being erect as at first. The caterpillar within, moves the case from place to place as it needs food, and makes its growth entirely within it. When full-grown, the case is made fast to a twig—not to a leaf, for that may fall—and the caterpillar goes into the pupa state, and finally becomes a small moth. The male leaves the case, but the female does not; she lays her eggs within it, and dies there. The insect visits almost every kind of tree; among evergreens, it is especially fond of the Arbor Vitæ, but it is found upon deciduous trees, those planted for shade, as well as fruit trees. The appearance of the case, bag, or basket, will depend upon the tree it inhabits; some are covered with bits of dried leaves, others with the footstalks of leaves, and on the Arbor Vitæ, they use short bits of slender branches. We found this, or a related species, upon the "Screw-Bean," in New Mexico, with the bags covered with the small white thorns of this tree, forming a perfect protection from any bird that might attack it. The insect is very destructive and increases quite rapidly. It has several natural enemies, which keep it in check, but it will not do to depend upon these. The only remedy thus far known, is to hand-pick them. Dect. W. B. Dewees, Lebanon Co., Pa., sends specimens, and writes that in a portion of his County, whole orchards are suffering severely from its attacks. In an orchard, the bags should be entirely removed, and this can be best done when the leaves are off. It may be a troublesome job, but it is the only way to get rid of these destructive pests, whether on fruit, or ornamental trees. The scientific name of the insect, is *Thyridopteryx ephemeræformis;* there are two or three others with similar habits, one feeding upon the Orange in Florida.



BAG-WORM.

**Pickling Seed-Grain.**—The unusual presence of smut the present season, makes it desirable that more than usual care should be taken to free seed-grain from it before it is sown. The smut is produced—as was shown last month, on page 301—from a minute spore, which serves the purpose that seeds do in ordinary plants, and it is desirable to destroy the spores wherever they may occur. The grain can be cleansed and the smut spores destroyed by steeping it in a pickle of strong salt brine, or a solution of 4 ounces of Sulphate of Copper to a gallon of water. The seed may be put into a tub with the solution and steeped two hours; or it may be put into a basket and the solution poured over it. This is an easy method and may be done as follows. Procure a bench or a block upon which the basket may stand (see engraving), arrange a sloping board, upon which the basket of seed is placed, so that the liquid will drip from the board into a pail after it has washed the seed. The pickle poured upon the seed in the basket flows through it and washes much of the smut from it, carrying it down the board and into the pail. The pail is covered with a piece of folded flannel or blanket, and the pickle filtering through this leaves much of the smut on the filtering cloth. When the dripping ceases, the liquid in the pail is again poured upon the seed and it is again washed. After it is drained, it may be spread upon the barn-floor and dried with a few handfuls of dry lime.



METHOD OF PICKLING GRAIN.

**Annual Growth of Trees.**—Mr. N. S. Britton, of Staten Island, in experiments with 22 species of trees, finds the White Willow the most rapid grower, with Apple, Norway Spruce, Ailanthus, Catalpa and Cherry next in the order given.

**The Am. Pomological Society.**—Fruit-growers should remember that this is the bearing year of this Society, and that the harvest will be gathered at Rochester, N. Y., this month, the 17th to 20th. This Society is perfectly free from anything like exclusiveness, and welcomes to its membership all who are interested in fruits, whether they be large cultivators, small cultivators, or no cultivators at all. We especially wish to encourage amateurs and beginners in fruit knowledge to become members, as we are sure that, aside from the value of the regular proceedings, they will find great benefit from meeting and conferring with others engaged in the same pursuits. Besides, a Society like this needs a constant accession of new members—of young blood, to keep up its life and maintain its usefulness. Let no one hold himself aloof because he feels that his operations are too small for him to rank himself as a Pomologist. The biennial fee is $1—and that entitles one to the volume of Transactions, which is well worth the money.

**A Persistent Weed.**—In 1865, Solon Robinson brought us a specimen of the "Bladder Campion" (*Silene inflata*), with the information that it was spreading rapidly in Westchester Co., N. Y., and promised to become a great pest. We at the time gave an engraving of the plant (see Sept. 1865, p. 277,) that it might be recognized, and warned farmers against it. Recently, a friend from the same County brought us a specimen to name, and from his account we find that it has fully met its early promise of mischief; it has taken possession of his lawn, and is establishing itself in cultivated grounds. Its root is large, and runs down for several feet, making it almost impossible to grub it up. Whatever else may be done, let it, wherever it appears, be prevented from seeding. It has opposite, pointed leaves, and a cluster of small, white, pink-like flowers, the calyx to which becomes bladdery or inflated; this, which is its distinguishing character, is shown in the engraving here given of a few flowers somewhat smaller than the natural size.

FLOWERS OF "BLADDER CAMPION."

**Oranges and Lemons.**—The reports show that for the fiscal year ending with June last the Oranges and Lemons brought into the port of New York had a money value of over $2,000,800, and paid a duty of about $560,000. The duty upon these fruits is 20 per cent, which is sufficient to give the growers in Florida and the other Gulf States, as well as in Southern California, great encouragement. The American grower of these fruits has not only this duty in his favor, but another agent that no change in the tariff can affect. Of the Oranges imported, about 36 per cent, and of the Lemons, about 20 per cent, were lost by decay during the voyage from foreign ports. The cultivation of these fruits in Florida has been much retarded by the foolishly extravagant accounts of land speculators. It is now becoming established as a regular industry, and those who went to Florida, supposing that Oranges and Lemons could be grown without labor, are giving way to those who are willing to work and wait. Under the more healthful conditions which the culture has assumed, we look for a large increase of these fruits from Florida and other Gulf States.

**The Tomato** has been the most unfortunate of all our vegetables. Those familiar with its early history can recollect that it had only fairly become popular when it was accused of various medicinal properties. The innocent fruit was charged with acting upon the liver like Calomel, and some chap produced a quack medicine, "Tomato Pills," which, to the credit of the people be it said, soon died a natural death. After the nonsense about its medicinal qualities had died out, and the tomato became a generally acceptable article of food, one Dio Lewis, who every now and then turns up in a new phase, discovered that tomatoes were injurious to the teeth. This is not so singular as that sensible people were found to believe it, and forego the use of tomatoes. The only way in which tomatoes can injure the teeth is by the action of the acid they contain during the process of eating them. Teeth that will stand uninjured the ordinary use of vinegar, lemons, rhubarb, gooseberries, and other sour fruits, have nothing to apprehend from tomatoes. Celery is likely to be the next victim of these remarkable physiologists—we believe they call themselves hygienists, or by some such name. It has already reached the first stage, and has been accused of being medicinal—to cure something, we have forgotten what. Soon it will be discovered to have some very bad quality; yet in spite of these remarkable reformers, the world will go on and eat tomatoes, celery, or whatever else is good.

**Sowing Oats with Winter Wheat.**—Some farmers, whose land is exposed to sweeping winds, have tried the sowing of one bushel of oats with their winter grain as a protection to that against the excessive cold and exposure. The oats grow up much more rapidly than the wheat and help to shade and protect it. When killing frosts occur, the oats perish, but in falling, still cover the wheat with their mantle of straw, and the protection remains through the winter, sheltering the wheat-roots. The little that is drawn from the soil by the oats is returned to it by their decay, and the benefit to the wheat is apparent when growth begins in the spring.

**The Early Peach "Waterloo."**—Last year we gave an engraving of the "Waterloo" peach, from specimens grown upon the original tree in Seneca Co., N. Y., and picked July 19th. Messrs. Ellwanger & Barry, Rochester, N. Y., sent us specimens this year, on August 1st, but the mail did not deliver them until the 5th. At least a day must have been required to get them from Waterloo to Rochester, and the fruit was evidently six days from the tree when we received it; it shows, as we noticed last year, remarkable keeping qualities. Even August 1st is very early for any peach to ripen so far north, and the sending of the specimens when they might have been withheld, shows that Messrs. E. & B. are willing to have the fruit seen at its worst, as well as at its best. Messrs. Ellwanger & Barry, write, Aug. 1st: "We send you by mail to-day, specimens of the 'Waterloo' peach. The fruit is not quite so large as it was last season, owing to the tree being overloaded. It has also ripened about ten days later than last year. We find this to be the case with all the very early peaches that we have seen thus far. Mr. Davidson's (of Painesville, Ohio), seedling, sent us last summer, was ripe July 9th, and measured 7 inches in circumference. This year, those sent, arrived on the 29th of July, were not yet entirely ripe, and measured 6½ inches in circumference, showing a marked difference in size and time of ripening as compared with last year. 'Cumberland' and 'Musser,' received from H. M. Engle & Son, Marietta, Pa., July 26th, measured 6¼ and 6½ inches in circumference. We think there is no doubt that the 'Waterloo' is the largest of the very early peaches. We hope soon to have trees of our own in bearing, when we can give them the necessary attention. The original tree in Mr. Lisk's garden, where these specimens were grown, has no chance to ripen its fruit early—besides, far too many specimens were allowed to remain upon the tree which is yet quite young. It should be added that the tree was cut back severely last August, in order to obtain every bud possible for propagation. This is, we think, one reason why the fruit is smaller and later than usual."

**Frog Farming.**—A Mr. Soule, of Elgin, Ill., is in his third year of frog farming, and his first crop is now being marketed. He has an acre and a quarter devoted to the frog industry. The kind grown is the "Goslin frog," much larger than the common sort. Mr. S. will, next season, furnish St. Louis, Chicago, and Cincinnati, with frogs, and is confident of success in the business.

**Sending Insects by Mail.**—We must again remind our friends that a large share of the insects sent us arrive in a perfectly useless state, from being put into paper boxes which are almost certain to be crushed in the mail. Boxes of wood or of tin are not difficult to procure, and these bring their contents in safety. If boxes can not be had, old fruit or tomato cans are always procurable. Heat these until the solder melts, knock out the ends, and straighten out the piece that forms the body of the can. These cans are of very thin tin, that may be easily cut with a pair of strong shears. Cut out a piece like fig. 1, according to the size of the box; cut out the corners as shown by the dotted lines; now turn up the sides, and you will have a box or tray, as in fig. 2. Make a similar one, just a trifle larger, the sides of which are not to be so deep, for a cover. This will form a box that will go in the mails for a long distance with safety. A block of wood with a hole bored in it, with a plug or cork to close the hole, answers well for a single insect, or several small ones.

Fig. 1.

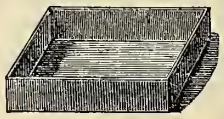


Fig. 2.

**Corn Smut.**—"H. F. L.," Sauk City, Wis., sends us a box of "diseased corn," for a name and a remedy. The trouble is caused by a parasitic fungus, *Ustilago Maydis*, commonly called "Corn Smut." This fungus usually attacks the ear, changing the grain to a swollen mass, filled with a dark, brown, dusty powder; but sometimes, as in the present case, it also appears upon the leaves, "tassel," and joints of the stalk. The only remedy is to cut off all affected parts, whenever and wherever they appear, and burn them, thus destroying the spores. Cattle should not be allowed to eat the corn fodder affected by the smut, as, in considerable quantities, it has been known to produce serious diseases.

**American Horses in France.**—A small shipment of American horses from Richmond, Ind., arrived in Havre a short time ago, and were at once accepted for the French Cavalry, at two hundred and twenty to two hundred and sixty-five dollars per head, the highest price paid for remounts. The demand for horses in the French Cavalry service, as well as for other purposes, together with the perfect success of this first shipment, teaches us that we have here another valuable item of export, and the sooner our people know it, the better. At the figures given, we can successfully compete with Germany, Russia, or any other country, and our Western horse raisers would do well to make a note to this effect.

**Salt on Melons.**—"D. C. M.," Trenton, Ont. So little is positively known about the action of salt as a fertilizer, except upon grain crops, that you will have to experiment for yourself as to its effects upon melons upon your soil. We shall be glad to learn the result.

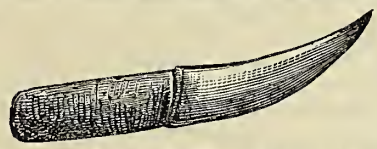
**High and Low Priced Wools.**—From Manger & Avery's monthly circular, July 15, we notice that the only class of wools for which there has been a steady demand at firm prices, is that known as Territory wools. These wools, grown chiefly on the plains, run from 15 to 25 cents per pound; while Ohio x, to xxx, sell for 36 to 42 cents. The difference in cost is greatly in favor of the cheap wools, to say nothing of their ready salability. After all, there may be the most money in cheap goods, and this is a point to be studied in all its bearings.

**The Largest Fleece of Wool.**—"O. E. P.," N. Y. The largest fleece of wool ever shown, is undoubtedly that cut in California about 5 years ago, and which weighed 52 lbs. This fleece, however, was supposed to be the growth of two years, and had a large proportion of dust and yolk in it. Fleeces of 34 or 36 lbs., are not uncommon among aged Merino rams, but of this four-fifths or five-sixths, usually consists of grease and yolk.

**Hen Roosts.**—It is a mistake to place the poles at different hights, rising from the front, because all will strive to get upon the highest one, and the weaker fowls are crowded off, and frequently fall to the ground only to repeat the process, or, if injured, remain upon the ground through the night. Place all the poles at the same elevation, and have a separate ladder for each. Do not have the poles and ladder combined, for the last pole will then be *the* roost, or the birds will think so at any rate.

**The Wheat Weevil.**—This little pest is not, as many suppose, brought in from the field, but works upon the grain after it is stored. In its perfect state it is a little beetle, one-eighth of an inch long, and has great powers of multiplication—a single beetle is said to produce 6,000 eggs. The eggs are deposited on the housed grain, and, soon hatching, the grub eats at once into the interior of the grain, and in time leaves only an empty hull. Fumigating the granary with sulphur is a remedy; the sprinkling of air-slaked lime has been recommended. If the granary is badly infested, it is better to change the place of storage for a year or two, and starve them out.

**A Handy Thing for the Salt Barrel.**—It is often the case that the salt will become very hard in the barrel, and when some is suddenly needed, as when one is in a hurry to catch some animal, it is difficult to get



the salt out of the barrel. We have seen a person in haste use a good chisel for the purpose, which, of course, was damaged by the salt adhering, and causing rust. Horn does not corrode or rust, and the sharp point and hardness render the horn of a cow or young steer specially adapted for use as a salt loosener. A handle of wood can be fitted into the hollow of the horn, as shown in the engraving. The crook is not at all objectionable, as the point can be pushed to one side all the better.

**Worms in Swine.**—"V. S. R.," Tchefuncta River, La. Worms in the intestines of swine often cause weakness of the loins and partial paralysis of the hind limbs. This is due to a loss of force of the lumbar system of nerves, proceeding from the lower part of the spine, and may be caused by disease of the spine, rheumatism, disorder of the kidneys, indigestion, and parasites in the muscles of the loins or in the bowels. It is almost impossible to indicate the cause until after death, when, if more in the herd are affected, they may be treated as may be found advisable. Turpentine applied to the loins, or given internally, acts favorably in nearly all the above complaints, and is, so far as known, the best remedy, if used in ounce doses, daily.

**To Repair a Flat Roof.**—"G. L.," Machias, Me. Flat, leaky, shingle roofs have been well repaired by using hot tar in which hydraulic cement has been mixed, until it is as thick as can be spread. When it is spread, sift more dry cement over it until a person can walk over it without its sticking to his feet. The tar prevents the cracking of the cement, while that in turn prevents the tar from running. If it is well worked under the shingles, and the cracks are well filled, a good water-proof roof may be made with little expense.

**Our Railroads.**—The net and gross earnings of the railroads of the country for the past eight years exhibit features of interest to every one, and we give them, together with the miles in operation each year:

| *Year.* | *Miles operated.* | *Gross earnings.* | *Net earnings.* |
|---|---|---|---|
| 1871 | 44,614 | 403 millions | 141 millions. |
| 1872 | 57,373 | 465 " | 166 " |
| 1873 | 66,237 | 526 " | 184 " |
| 1874 | 69,273 | 520 " | 189 " |
| 1875 | 71,739 | 503 " | 185 " |
| 1876 | 73,508 | 497 " | 186 " |
| 1877 | 74,112 | 473 " | 176 " |
| 1878 | 78,960 | 490 " | 187 " |

The greatest gross earnings were in 1873, but the greatest net earnings were the next year. The number of miles has nearly doubled in the eight years, and will be fully double in 1880 at the close of the decade.

**Ground Bone vs. Superphosphate.**—"W. H. B." asks, why it is not as well to use Ground Bone as Superphosphate, supposing there are the same essential elements present in both, and in the same amount.—In the crude bone the Phosphoric Acid is not in so available a form as in the Superphosphate. The plant can not take it up so rapidly because in an insoluble state, while with the Superphosphate the plant takes it up easily. The bone is a slow fertilizer, while the Superphosphate, on the other hand, gives quick returns for the money—an important thing in a fertilizer. The finer the bone is ground the quicker will be its effect upon the crop. The effects of coarse ground bone are seen on the land for several years after its application When the bones are treated with Sulphuric Acid, and the Phosphoric Acid rendered soluble, the first crop gets most of the benefit.

**The Potato Disease.**—The (London) "Gardeners' Chronicle" for July 26th, speaks in desponding terms of the Potato Rot. With the excessive moisture of the previous few days, the fungus has developed rapidly. In France the potato crop is already greatly injured, and other European countries are suffering. The "Chronicle" says, "A summer without fruit, a spoilt hay crop, the potatoes rotten, and possibly a wet harvest, are events that will hardly help England through her present trade and commercial embarrassment."—We may look for the Potato Rot in this country after excessive rains, but happily no signs of it as yet have come to our notice.

**The Silk Crop.**—There is an almost entire failure of the silk crop in Italy and France, and the raw article has advanced rapidly in market value. Silk goods will be necessarily high for some time to come. This encourages the establishing the culture of silk in the United States, many parts of which are well adapted to this industry, the chief difficulty being the cost of labor.

**Value of Foods.**—The value of foods for stock is not to be measured by the market price per ton, but by that as compared with the actual nutritions value. Thus, cotton-seed meal, containing 13 per cent of oil and 30 or 40 per cent of nitrogenous or flesh-forming matters, and which sells for $25 or $26 per ton, is evidently a cheaper food than corn meal, which has 5 or 6 per cent of oil and 10 per cent of flesh-formers, but which sells for $23 per ton. In selecting a food, this point of actual feeding value should not be overlooked; at the same time, the digestibility of the food and its effect upon the system should not be neglected. In general, the healthfulness of an animal is best secured by a mixed ration, such as bran, corn-meal, and cotton-seed meal, in proper proportions, and in making up the proportionate rations, this should be done in reference to the feeding and money values of the different substances.

**Was it Pleuro-Pneumonia?**—"J. C. S.," Pendleton, S. C., writes: "Did our cows have Pleuro-Pneumonia or not? In February last, we imported seven head of young Jersey cattle, and about June first we noticed following symptoms: First, a cough with the back bowed slightly, then a running of a yellow watery substance from both the nose and eyes, which thickened daily. When the cows were well stricken with the disease, they had little inclination to eat or move about." This may have been a case of either Pleuro-Pneumonia or of Bronchitis, as the symptoms belong to both. The most marked symtom of the former, is the condition of the lung which becomes solidified (*hepatized*), as the disease progresses, and this is discovered by the dullness in place of the usual resonance of the chest when it is struck by the closed, gathered ends of the fingers. We should say that the disease was Bronchitis, caused by the warm weather, in animals accustomed to a cool climate.

**Warts.**—"M. S. G.," Morristown, N. J. Warts are excrescences growing from the skin into which nerves and veins sometimes penetrate, and they then become vascular and sensitive. The cause cannot be satisfactorily given, but in many animals, they are constitutional and seem to accompany a scrofulous condition in which there are deposits of abnormal matter in the bones and in the cellular tissue and the skin. The only remedy is to destroy the warts by caustics, when they are flat, and by tying a waxed thread or a wire ligature tightly around the base when they are long. Unless they cause trouble or inconvenience, they are best let alone. If they are to be removed, this should be done when they are small.

**Another Good Cow.**—"B. J. F.," Wallingford, Conn., reports a 3-year-old Jersey cow owned by Mr. Malley, of New Haven, as giving three times her own weight of milk in June last, and a yield of 58 lbs. of butter from the month's milking. This is a valuable cow.

**Twenty Years in the Price of Corn.**—In 1859 corn was worth 70 cents a bushel; and the price did not vary much until 1864, when it went up to $1.10, followed by the remarkably high price of $1.75 the next year (1865). A fall to 85 cents came the next year, and a rise to $1.10 during the two succeeding years (1867-'68). Since this time there has been a gradual fall to 40 cents, the price for last year. In 1875 there was an exception in a *rise* of 10 cents (85), followed by a fall of 25 cents (60) for the next year. It is to be seen that during all the 20 years corn was never so low as at the present time.

**Plans of Lime Kilns.**—"R. W. S.," Manatawny, Pa. Plans for lime kilns were given in the *American Agriculturist* for February, 1875, and September, 1871.

**Honey Dew** was in olden times supposed to be the tears of the gods, but at present it is better understood, and not considered of celestial origin. In many cases, if not in all, it is due to small plant-lice, (*Aphides*), which feed upon the plants, and exude from their bodies this sweet, clear semi-liquid, which glistens in the sun like dew-drops, and falls to the ground in little patches. This dew is often gathered by bees and made into honey—a honey which is the work of two distinct insects.

**Weights of Hay in Stack.**—"E. A.," Jefferson Co. Hay in bulk varies in weight in proportion to its kind, condition of ripeness, and its compactness. Clover, Red-top and light meadow hay, cut when nearly ripe and put up in stacks of 4 or 5 tons, will measure 700 cubic feet for a ton. Timothy of similar character and condition will measure 500 feet to a ton. Half Timothy and half Clover will measure about 600 feet. Dead-ripe common meadow hay will measure 900 feet for a ton very frequently; this kind is very uncertain and is of so little value that it does not matter much how large a quantity goes to a ton. Much depends upon the compactness.

**Weaning Calves.**—"W. L.," Farmington, Ill. The practice that calves sometimes have of sucking each other or of sucking cows, may be prevented and in time cured, by using the Calf-Weaner here illustrated. The device is old and has been found effective, but there has

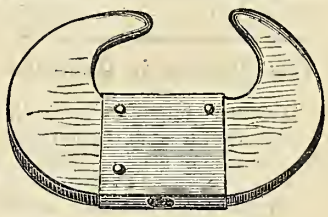


Fig. 1.—CALF JEWEL OPEN.

heretofore been a difficulty in fixing it upon the nose of the calf. This is now avoided by the invention of Mr. Rice, in which the points of attachment can be opened

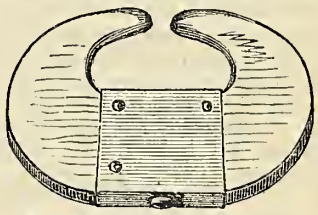


Fig. 2.—CALF JEWEL CLOSED.

to fix the Weaner on the nose, and then closed to fasten it. The engravings, figs. 1 and 2, show it in both positions.

**Balancing a Burr-Stone.**—"E. T.," Cal. If a burr-stone is truly centered and balanced on the spindle, the spindle is perfectly upright in every direction. If the spider is set in true and the stone truly faced, it will preserve a running balance when at work. But to do all this, includes a large part of the practical education of a miller, and how to do it cannot be so told that an inexperienced person can succeed. Milling is a business that requires a great amount of practical knowledge of details, such as this, and which can only be learned in the mill.

**A Grain Drill for Cultivating Wheat.**—"G. E. S.," Licking Co., Ohio. Mr. Brandon, the inventor of the Wheat Hoe, to which we have often referred, at first combined his Hoe with a wheat drill, but soon after abandoned this arrangement, probably for good reasons. As a wheat hoe can be very cheaply made, it is probably better not to hamper the drill with the attachments, but procure a separate implement. From our repeated tests we are led to strongly recommend some carefully made experiments in cultivating wheat. The practice will, in all probability, eventually become general.

**Bearded Straw and Chaff Injurious to Cattle.**—"R. L. H.," Waverley, Va. When horses, cattle, or sheep, consume straw or chaff of bearded grain, they are apt to suffer from the penetration of the coats of the stomach by the sharp *awns* or beard. Sheep and cattle have died in consequence of the walls of the rumen being completely filled with masses of rye or wheat beards. As the chaff is largely mixed with broken beards, this is as injurious as the straw. There is no objection to it for use as litter. Many separate the beards in threshing.

**American Devon Herd Book.**—The 5th vol. of the American Devon Herd Book, published in July, 1879, contains 825 pedigrees, 273 of these are of bulls, and 552 of cows; this volume is sent to applicants by the editor, H. M. Sessions, Hamden, Mass., for $2.00. The 6th vol. will be published as soon as one thousand entries have been sent in. Acceptable pedigrees sent to Mr. Sessions, with a fee of 50 cents, will be received and filed for record in the next volume of the Herd Book.

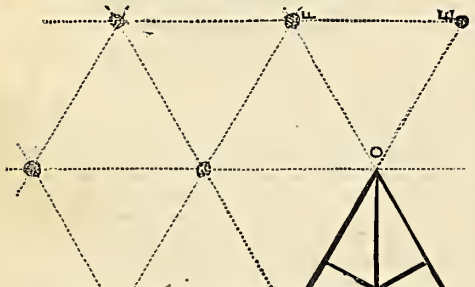
**Exposure on the Farm.**—We can remember when in the harvest or hay field, we worked until the rain came, and then started for some tree, only to be exposed to the danger of lightning, and what was still more dangerous, (though we did not think so at the time), the beating rain upon the thinly clad back. The shower being over, we would continue our work, in the wet clothes, it might be in the barn if the shower was a long one, but at any rate, it was thought safe to "let the clothes dry on the back, as there was less danger of taking cold." This is all wrong. When the clothing is soaked with rain, change it as soon as possible, and never wear it for hours with the false idea, that the practice is harmless. There is too much of this needless exposure upon the farm, which tells in time upon the human frame, inducing rheumatism, and other afflictions. Farmers need to be all the more careful, as the opportunity for undue exposure, is frequently presented in their occupation.

**Colored Glass and Evaporation of Water.**—M. Bandrimont, communicates the result of some experiments to the French Academy, which show that the sun's rays, after passing through green or red colored glass, lose much of their power to evaporate water. Of all the colors, yellow diminishes this power the least.

(*Basket Items continued on page* 359.)

## Tree-Planting in Quincunx.

"R. W. H.," Flemington, Fla., and others, wish to know how to plant trees in the style called *Quincunx*. By this method of planting, every tree stands at the corner of an equal-sided triangle, and in the center of, and equally distant from, six other surrounding trees. First, decide upon the distance for the trees; if 30 feet, then make an equal-sided triangular frame of light stuff, with the sides as long as the distance between the trees. The frame may be braced by cross-pieces as shown in the engraving. Having decided where the first row shall be, place the frame at one end of the row so that *A* and *B* will fall upon it, and they will designate the places for the first and second trees. Set stakes at these points. The first tree in the second row will be at *C*, which also requires a stake. The line *C D*



QUINCUNX PLANTING.

which passes from the angle *C* to the middle of the opposite side of the frame *A B*, is the distance between the rows. Go to the other end of the rows, and with an ordinary pole, determine the position of the rows and set stakes, then you are ready to return and lay off the places on the rows and set stakes for all the trees. The triangular frame is no longer needed, as the position of *E* and *F* can be obtained by measuring off the distance between the trees on the lines with *A C* and *B C*, and the position of the trees can be laid off as before. If the measurements are exact in the beginning, and made with due care throughout, there will be no trouble in getting all the stakes to "line" in the various directions which this system gives. The advantage of the system is that it gives a more uniform space on all sides of the tree, as it is surrounded by a *circle* of trees, seen in the engraving, instead of a *square*.

**The Dutch-Friesian Herd-Book.**—When the Dutch cattle imported from North Holland, first became noted in this country, they were wrongly termed "Holstein" cattle, and in due time a Herd Book was established for recording them and their progeny. After some years, the absurdity of giving to a race of cattle, a name to which they were in no way entitled, and which the *American Agriculturist* has ever protested against, became apparent. A new name has therefore been conferred upon the breed, and a second Herd Record is in progress. The name now adopted is Dutch-Friesian, by which is meant cattle from North Holland and Friesland; but as both these localities are Dutch, the compound name would seem to be unnecessary, and Dutch would sufficiently identify them. But the main point in the new Herd Book is one of its rules, by which all animals are excluded which have not come up to a satisfactory standard as regards milk production, viz., a yield of at least 6,000 lbs. in 12 months from calving for a 2½-year-old cow, and 9,000 for a 4½-year-old, etc. This, it must be confessed, is a step in the right direction, and if a similar rule had been made in the "Am. Jersey Cattle Club Register," we should not have been amazed to see the editor of that book cautioning the public against purchasing any one of "car loads of worthless brutes," which, having the certificate of entry in that Record, are supposed, by innocent purchasers at least, to be animals of some value. But it is something, however, to know that even a registered Jersey may be a worthless brute.

## Editorial Correspondence.—Items from Notes by the Way.

[Though his original programme of travel was partially interrupted, and materially changed, by temporary illness, Mr. Judd continued his journeyings for nearly two months, gathering information, and making a great variety of notes, which will be drawn upon from time to time, though not in regular order.—EDS.]

### The Corn Crop of 1879, and Its Uses.

*On Lake Erie, August 4th.*—Beginning in 1850, twenty-nine years ago, I have made very frequent journeys Westward, as the settlements have advanced, and now feel pretty well acquainted with the entire country between the Atlantic and the Rocky Mountains—at least, as far south as Tennessee, Missouri, and Kansas. I have also been down and up the Mississippi River, between St. Paul and New Orleans, and down the Atlantic Coast to Florida, and back through Georgia, Tennessee, Virginia, etc. In all these past journeyings, I have witnessed nothing more gratifying than the appearance of the growing CORN, as I have seen it during the past seven weeks, particularly in Ohio, Indiana, Illinois, Iowa, Nebraska, Minnesota, Wisconsin, and Michigan. It is simply magnificent, taken as a whole, with, of course, a few local exceptions,—and they are very few so far as I have observed, or been able to hear of. The late opening of spring caused well grounded fears, but they have not been realized. If early frosts do not come to blast the later ripening fields, the corn crop of 1879, taking into account the increased area as well as the present condition, must largely exceed that of any and every former year.—One is tempted to ask, "What will we do with it all?"—Probably such a crop could not all have been used in *any* former year. Not so now. While corn has come into greatly increased use abroad—it will be more in demand this year than ever before—and many millions of bushels will cross the Atlantic in the kernel, it will go far more largely in the form of beef, pork, lard, and butter also. The demand for these is almost unlimited. The only question in my mind is, are there animals enough now growing to manufacture this surplus corn into the concentrated products. A 300-lb. porker is a condensation of 1,800 to 2,000 lbs. of corn (32 to 36 bushels). In other words, we can concentrate the product of an acre of corn into one 300-lb. barrel of pork, and in this form it is easily and cheaply freighted 4,000 or 5,000 miles to reach the European consumer. As freight, especially by water, is usually charged by bulk rather than by weight, the 32 to 36 bushels of corn goes in *one* barrel in the form of pork, while in the form of shelled corn *ten* to *twelve* barrels space would be needed. The above applies also to feeding corn to fattening cattle, and to butter producing cows.

### The Wheat Crop of 1879.

*Chicago, July* 25.—Fifteen years ago there were no general, systematic, reliable reports upon the condition, area, or yield, of the leading crops, but the producers were always in doubt, and at the mercy of speculators for a rise or depression in prices, who industriously circulated favorable or unfavorable rumors as best suited their desires or necessities. The *American Agriculturist* undertook to supply the general lack of correct information. Over **1,500** reliable, special correspondents were selected in different parts of the country to report, at a given date each month, the comparative area and the condition of wheat, corn, etc., by a system of percentages. Thousands of dollars were expended, and the enterprise grew so large and important that a proposition was accepted to turn the whole work, forms, blanks, list of correspondents, etc., over to the Agricultural Department at Washington—where it has since been carried on with a varying degree of accuracy and value. [This Journal has never received its proper or due credit for starting the enterprise]. At the present time, not only the State governments, but a large number of enterprising Journals are gathering widely extended and quite accurate accounts of the actual condition and yield, especially of the wheat crop. The result of the Wheat Harvest of 1879 will be known with much accuracy before these notes can reach our readers. I will therefore say in brief, that having just completed a careful examination of the wheat fields of representative portions of Minnesota and Wisconsin, and previously of Illinois, Iowa, and Nebraska, and conversed with many trustworthy growers from other sections, I estimate the crop of this year, taken on a whole, in the States named, with Ohio and Michigan, as just about a good average yield per acre. But the area is largely increased, and the TOTAL YIELD *in the whole country will be considerably above the average in the past.* I have seen many splendid fields, and I have also noticed many thin ones. I have seen the chinch bug sucking the juices from the not quite mature crop in some places, and in others there were only the remnants of stalks on some thousands of acres which the grasshoppers had passed over. These last were happily confined to a very few localities, and the chinch bug ravages were not widely extended. The large crop would have reduced prices to a very low figure, but the generally poor crops in Europe will make a sufficient market to maintain fair, not very high, rates for all we shall have to dispose of.

### What Railroads are Doing for Farmers.

*Lake Kampeska, Dakota, July 18th,* 1879.—We are here, 631 miles west-northwest from Chicago, the present terminus of one of the numerous lines of the Chicago and Northwestern Railroad Company. Diverging at Tracy, 96 miles east of here, this Company is building a long stretch of railroad towards, and intended to reach, the Black Hills region in Western Dakota. Other companies are also pushing forward, and extending their tracks towards the same region, and Southern Dakota with Northern Nebraska, will derive great benefit from them. The cars have only recently run to Watertown, just east of Lake Kampeska. The country is a good deal settled as far as Marshall, Minn., 75 miles east of this, and new settlements are scattered all along westward, but there are millions of acres waiting occupants, which have not been in the market hitherto. All over Nebraska new extensions of the Burlington and Missouri and the Union Pacific Railroads are now being rapidly built, each mile of which will bring thousands of acres of fertile land within the easy reach of markets. At the far Northwest, toward the Red River, Lake Winnipeg, Manitoba, etc., the extension of the railroads is opening up a wonderful wheat region, as stated by our Associate, who visited that region last autumn. But I began this item to speak of

### The Great Trunk-Line Railroads.

Open any good, recent map of the United States, especially one of a Railroad Guide, and notice the wonderful net-work of iron tracks that cover the whole country between the Atlantic and the Missouri River. Through this net-work will be seen several leading, continuous roads, beginning with the Grand Trunk in Canada, the N. Y. Central, the Erie, the Pennsylvania Central, the Baltimore and Ohio, and the nearly completed Chesapeake and Ohio. There has been a fierce competition between

these several through lines for business, and millions of tons of Western produce and live stock have probably been carried to the seaboard at less than the actual cost of hauling, to say nothing of wear and tear of rolling stock and road-bed. This low freighting, while temporarily injurious to the stockholder, has been of very great importance to the farming interests of the whole country, because it has resulted in introducing our products to European markets at prices below the current rates, and even below cost of production there. The beef raised in the Mississippi Valley States has been laid down in London, in a fresh state, so low that it broke down among the masses the prejudice in favor of "English beef." It has stimulated the invention of new processes of shipping fresh meat, and the trade thus opened will go on, supplying an outlet for the agricultural products of our vast country, now increasing in such a rapid ratio. It is no wonder that under the present circumstances

**English Farmers are Troubled,**

as well as the great landholders, whose $5 to $10 per acre rental can no longer be paid by their tenants. The system of agriculture all over Great Britain and in many other parts of Western Europe will necessarily be changed. Lower rents, and the division of lands into smaller holdings, will be the result, while a greatly increased emigration to this country will be stimulated. English tenant farmers are now paying about (Three Hundred and Thirty Million Dollars,)

**$330,000,000 Rent Every Year,**

on the land they cultivate. This would annually purchase 33 million acres of our good land at $10 per acre. It would pay for transporting an equivalent of 660 million bushels of wheat, at the high rate of half a dollar per bushel, from our western fields to the other side of the Atlantic, or nearly double the actual cost of freightage. But the English farms will not, of course, lie idle, and the terms of rent and the price of land will of necessity be reduced to so low a rate that the cultivators can compete with our cheaper products. The loss will, therefore, in the end fall largely upon the present land owners, and five to ten shillings per acre is likely to be the rental in the near future, instead of the $5 to $10 per acre now paid for good land. This will, however, be partly offset by a change to crops requiring more of their cheap manual labor, leaving wheat and meat to be supplied by American producers.

**Buying a Farm with One Crop.**

It is stated in several papers that a farmer in Marion County, Iowa, last year offered his farm for sale at $20 per acre. Failing to sell, he put in a large crop of wheat, which at present prices will bring him $31.45 per acre. This is easy to believe, for I have met in my travels a number of farmers who purchased railroad lands, and from other parties, at $6 to $10 per acre, and sold the first crop of wheat for enough to pay for the land, the breaking, and all expenses of raising and harvesting, with a surplus left. If I was out of business, with a cash capital of $5,000, $10,000, $20,000, or $50,000, or more, I should, as the most certain and profitable investment of it, buy a large tract of good land, such as is still for sale under $10 an acre in Southern and Western Iowa, Eastern Nebraska, and Western Minnesota—reserving enough cash either to stock the land with cattle and raise a good corn crop to fatten them with, or, if in the more northern regions, to break the ground, get it into wheat, and harvest it. If the amount of cash capital was too small to buy plenty of land, I would pay for part of it, and take the rest on a two to four years' credit, keeping enough ready money to stock and work the land for a year or two.

**One Illustration.**

In going west from St. Peter, Minn., I fell in with Mr. E. S. Youmans, brother of Prof. E. L. Youmans. He is carrying on a large business in lumber, etc., at Winona. His son having received a good education, on coming of age expressed a preference for farming as a business. Mr. Y. bought three sections of land at Marshall, Minn., paying the R. R. Co. over $14,000 cash for it, I believe. At the time of our visit, his son had 640 acres in wheat, just ready for the reaper, which, at 85 cents per bushel, will pay all expenses of the crop, the cost of the land, and probably a good rate of interest on the cost of the other two sections. Plenty of similar illustrations could be given. I met them in Eastern Nebraska for over a hundred miles west of the Missouri River, along the Union Pacific R. R., north of the Platte, and along the Burlington and Missouri R. R., south of the Platte, and elsewhere.

## The "Telegraph" Water Carrier.

A method of bringing water from a distance, by means of a wire stretched between poles is termed the "Telegraph Carrier." An account of this was given several years ago, but some recent inquiries induce us to present the method employed at present. This method of carrying water may be found convenient when there is a spring at a considerable distance from the house, and at such a depth below it, that a pump cannot be used. Water may be brought by the "Telegraph" for a distance of several hundred feet, and up an incline of 50 or even 100 feet if necessary. The roadway, shown in figure 1, is constructed of poles set in the ground, but it may be attached to a post-and-rail, or even a board fence, if convenient, and fence boards or strips may be used in place of wires. The carriageway is supported on arms as shown at figure 2, and is made to carry a wheel, deeply grooved, seen at figure 3. The bucket is affixed to this wheel by a crooked arm, so bent as to throw the center of gravity directly under the track and wheel. A cord is fastened to the handle of the bucket by which it is let down or drawn up; the cord may be wound upon a winch, shown at figure 4, after passing over

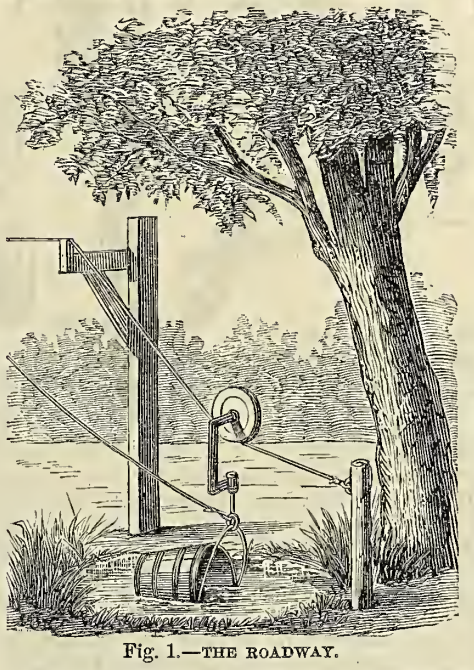


Fig. 1.—THE ROADWAY.

a pulley suspended from the first arm. When the spring is reached, the wire, or roadway, is carried down to a stake at the edge of the water; this causes the bucket to tip as it strikes the water and become filled, when it may be drawn up by the winch.

## Feeding Calves and Yearlings.

The spring calves that have been weaned and turned to grass, will begin to suffer from short rations, unless some extra food be provided for them. It is poor management to permit calves to fall off in condition, or even to stop growing at this season. The pastures are usually dry, and the herbage innutritious, and there is danger not only of a falling off in condition, but the contraction of disease from disordered digestion, consequent upon the filling of the stomach with indigestible matter. The most forward calves are the most subject to this danger, and become the first victims to neglect. This is the chief cause of "Black-leg" or "Black Quarter," (carbuncular erysipelas), which carries off many calves in the fall and spring. If some green fodder cannot be spared for the calves, some supplementary food may be provided for them. A mixture of wheat middlings and linseed meal, and cotton-seed meal, in equal parts, may be given in small quantities twice a day, beginning with two

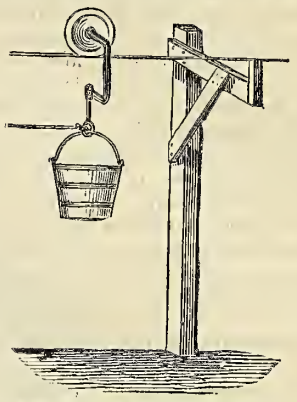


Fig. 2.—A POST WITH ARM.

ounces at a meal, and increasing up to twice as much. This quantity may be given with benefit to a three to six months' old calf, and twice as much to a yearling. An ample supply of fresh water is necessary, and occasional small doses of salt, will usually promote a healthful digestion.

## Roots and "Yarbs".—In the Mountains of North Carolina.

BY PROF. ASA GRAY.

[The following extracts from a letter from Prof. Gray to the Editor, will give some idea of a little known region, and a peculiar local industry. ED.]

As Agriculture embraces all practical herbaceous matters, I will call your attention to a branch of it—a small branch, you will say—which I had no idea of. It is the Root and Herb business as carried on in the mountain districts of Carolina. Our glorious botanical journey—which only wanted your companionship to make it perfect—took us to the headquarters of the business, and through the regions where most of the collecting is done, and we had at times the company of the two men who largely control it,—Hyams, of the firm of Wallace Brothers, of Statesville, and Cowles, of Gap Creek, whose father organized and developed the business in the first place. Being ourselves members of the herb-confraternity, we were received with enthusiasm, and shown all the operations. "*Sang*," *i, e*, Ginseng, the original foundation of the trade, has been collected ever since the earliest settlement of the country, and is by this time pretty well rooted out from the more accessible districts; but it is still brought in, and brings 75 or 80 cents a pound. When I was first in these mountains, between 35 and 40 years ago, this, and *Angelico*-root were the only things which were gathered for market. Now, the price-list which you will find posted at almost every road-side store, enumerates over two hundred articles. Some of them are cultivated things, such as Summer Savory, Southern-wood, Peony-flowers, Watermelon-seed, and leaves of the Poppy and Garden Lettuce. But most are of wild herbs, or the bark or berries of trees, or in some cases blossoms. Elder-flowers, for instance, are a prime article. The collecting is done by women and children—it could be done only by cheap labor—and the articles, when dried, taken to the country store, usually to the nearest County Seat, and exchanged for "store goods," very little money passing. Almost every day we would meet women on horseback, with a bundle of the more bulky herbs on the off side,

Fig. 3.

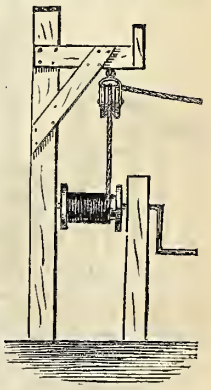


Fig. 4.—THE WINCH.

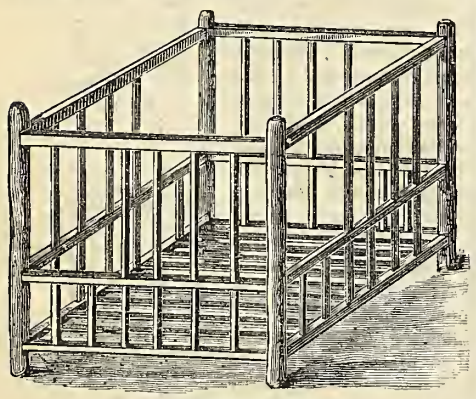
commonly wrapped in a sheet or blanket, and another on the pommel, and a basket in one hand. With the proceeds they buy most of the clothing that is not made at home (for, happily the wheel and the loom hold their place in almost every house), perhaps some sugar, and their small finery. But "tree-sugar" is made for home consumption, and serves for the coffee (tea is unknown, at one place, where our tea was pronounced "not bad to take," we were requested to tell them what they should call for if they ever got any at the store); and the best of honey abounds. In these mountains milk and honey literally flow without price. At least we could never get the people to fix any.

From the country stores the roots and herbs pass to the larger dealers, and from these only would you get any idea of the magnitude of the business. You should see the herb-warehouse of Mr. Cowles at Gap Creek, in Ashe County, and the much larger one at Statesville, of the enterprising Wallace Brothers, under the charge of Professor Hyams, three of whose sons are in the business at different points, and one of them in McDowell County, where he was the fortunate rediscover of the long-lost Shortia. Bales upon bales of roots and herbs, compacted by a powerful screw-press, accumulate in these warehouses, and pass on to northern cities and ports. What becomes of them? Some are standard articles of the Materia Medica, such as Mandrake-root, from which *Podophyllin* is made. One day, while we were present, an order came to one of these establishments for *ten tons* of Mandrake to go to France. The larger number of articles go into patent medicines. You may form some idea of the demand for this purpose from two orders just received, one for an unlimited amount of Liver-leaf (*Hepatica*), the other for two tons of Maidenhair (*Adiantum*). Consider what a quantity of these, in a dried state, would go to a ton!

And now, if I begin to tell you anything about Azaleas and Laurels—both Rhododendrons and Kalmia, there will be no end. We were just in the season for these in all their glory, having timed it accordingly. You may say there is no need to go to the mountains of North Carolina for these, but you will get new ideas if you do. Nowhere else can you see wooded hillsides of the richest green break out into flame with *Azalea calendulacea*, and nowhere but in Roan can you see some miles of grassy mountain-top all ruddy and rosy with *Rhododendron Catawbiense*. Now you can comfortably reach the top of Roan Mountain in 36 hours from New York, and be in mountain air all the way after leaving Lynchburg, and on the mountain be most comfortably and cheaply housed and fed, at the Cleveland Hotel, at an elevation a few hundred feet higher than the top of Mount Washington, and enjoy an air which is cool without bleakness, and views such as we have never elsewhere seen the like.

## A Useful Fodder Rack.

The use of fodder racks in the barn-yard is often objected to, for the reason that, if they do not encourage, they give opportunities for the manifestation of the fighting propensities of the animals, which often produces confusion, and sometimes damage. To avoid this, the racks may be made as shown in the accompanying engraving. Rough, small timber may be used for these, or even short rails. A separate feeding place being provided for each animal, the herd may stand at the rack, in peace.



A GOOD FODDER RACK.

## The "Walking-Stick," and its Depredations upon Forest-Trees.

In the *American Agriculturist* for June, 1877, we gave some account of the destructive work of one of the insects known as "Walking-stick," upon the forest-trees in Yates Co., N. Y. A very intelligent farmer, W. C. Snow, Esq., having given us his observations by letter, and in personal interview, we gave these in the number referred to, with an engraving of one of these insects, with a view to calling the attention of others to this remarkable enemy to our forests. We also advised Prof. C. V. Riley of the matter, and placed him in communication with Mr. Snow. When Prof. R. gave importance to the U. S. Department of Agriculture, by accepting the appointment as Entomologist, one of his earliest investigations was made in the forest of Mr. Snow, to which he made two visits. An account of his observations upon this insect will be found in his Report to the Dept. whenever that shall appear, but as Prof. R. has given us the chief points in advance of its publication, and a copy of the engraving prepared for the Report, we make such use of the materials as will supplement the account given in 1877. We may add here, as some may not have that volume, that this insect, known also as the "Stick Bug," belongs to the same family of insects as the Grasshoppers, Locusts, Katydids, etc., the *Orthoptera*, or straight-winged insects. This is always wingless. Its scientific name is *Diapheromera femorata*. The trees especially attacked were, first, the Black, Red, and Chestnut Oaks, and after these the White Oak and the Hickories. The work of the insect is first manifested just after the wheat harvest, and continues until September, when the trees are as completely stripped as if by fire. They are in such numbers as to make it unpleasant to enter the woods, and they cover underbrush, fences, etc., with their repulsive forms when they travel from one exhausted feeding ground to a new one. The insects appear in considerable numbers only on alternate years, and do their work so thoroughly that the portion of the forest infested by them is quite leafless, and is noticable from a long distance. The insects hatch in May, but at first are small, and being green they are not noticed; as they grow and change their skins, they become larger and of a brownish color until they attain the full size shown in the engraving, which shows not only the insects, but the manner in which they treat the leaves. At *a* and *b* the enlarged egg is shown in two positions; these are black and polished, with a white stripe, and look much like a seed of some plant of the Pea Family. At *c* are shown the young just hatching. Each female lays upwards of a hundred eggs, dropping them while she is upon the tree. At the proper season, when the insects are numerous, the falling of the eggs upon the dried leaves sounds like the pattering of rain. The eggs are concealed by the leaves, but are so numerous that they may be scraped up in quantities. The appearance of the insect in injurious numbers every other year is accounted for by the singular fact that the greater part of the eggs do not hatch until the second year. As the trees can not long survive these attacks, many in Mr. Snow's forest having died, it becomes an important matter, not only to the few who have suffered from their attacks, but to all interested in forestry, to check their further increase. As with other insects, when they become very numerous, their natural enemies will increase in proportion, but it is important to aid these by artificial means. The methods suggested by Prof. Riley are: to burn the dead leaves under which the eggs lie, or to dig or plow them under, according to circumstances; and to poison the young insects, as, when first hatched, they feed upon the foliage of the under-brush. He proposes, where it can be done without danger to domestic animals, to sprinkle the under-growth with Paris Green. The fact that they occupy a well defined area, renders both of these methods practicable.

THE "WALKING STICK" AND ITS WORK ON LEAVES.

Fig. 1.

## A Simple Stump Puller.

Stumps of small size, larger ones that are half decayed, or even whole trees, may be torn out by the roots, by the use of simple appliances. These are a stout iron hook, a strong lever, a heavy chain, and a pair of horses or cattle, to be hitched to the chain. The hook, figure 1, is provided with a chain and ring, a sharp point, and a head by which it is driven into the stump, without battering it. It should be curved to fit the circumference of the stump or tree. A lever is passed through the ring, and the team is hitched in the usual way to the other end, as shown at figure 2. The method of operation is made plain by the above engraving.

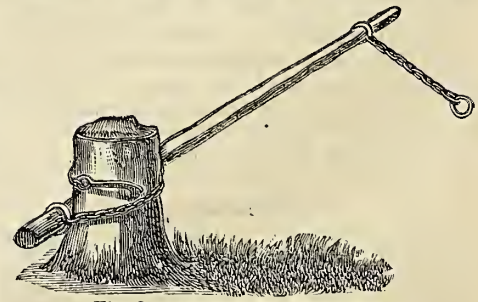
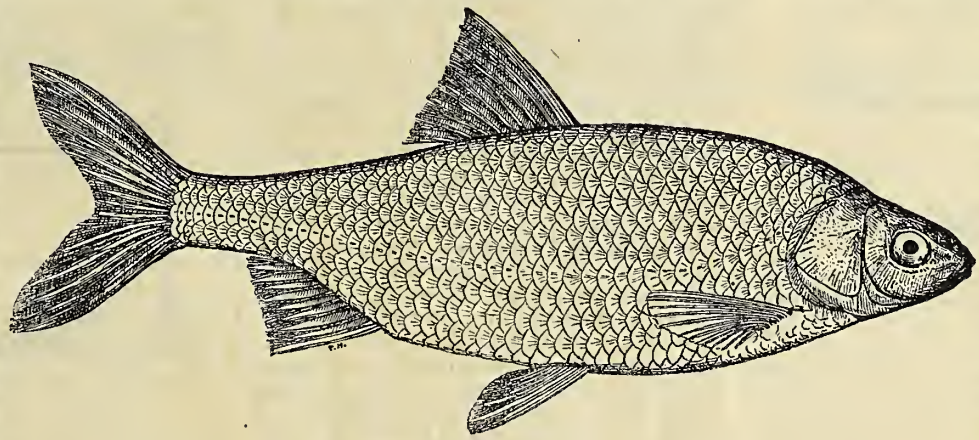


Fig. 2.—METHOD OF OPERATION.

## Roach, Dace, and Fishes not "Game."

The abundance, heretofore, of the best class of game fishes, has tended to keep in the back ground, the more common and less valuable kinds. While Brook Trout could be caught in any stream, in satisfactory quantities, fishermen looked with contempt upon "coarse fry" as Roach, Chub, and such despised fish. But there may be too much of a good thing. One does not "want always partridge" or daily salmon, and Connecticut farm laborers of the last century, are said to have stipulated in their hiring agreements that they should not be fed upon salmon more than twice a week. With something of the same feeling we have, ere now, gladly taken home a mess of Chub or Roach, as a welcome variation upon the too frequent Speckled Trout; this being in a part of the country where Trout were very plentiful, and could be had for the throwing of a fly, or a live grasshopper. Fish is a wholesome food, and as everybody can not have the best kinds, which are now scarce and costly, the less esteemed sorts may be very acceptable. There are several fish of this kind; despised and rejected by the fastidious angler, but welcome to others, and more than all, to the farmer's boy who has a day off for fishing and has no hope of taking Trout.

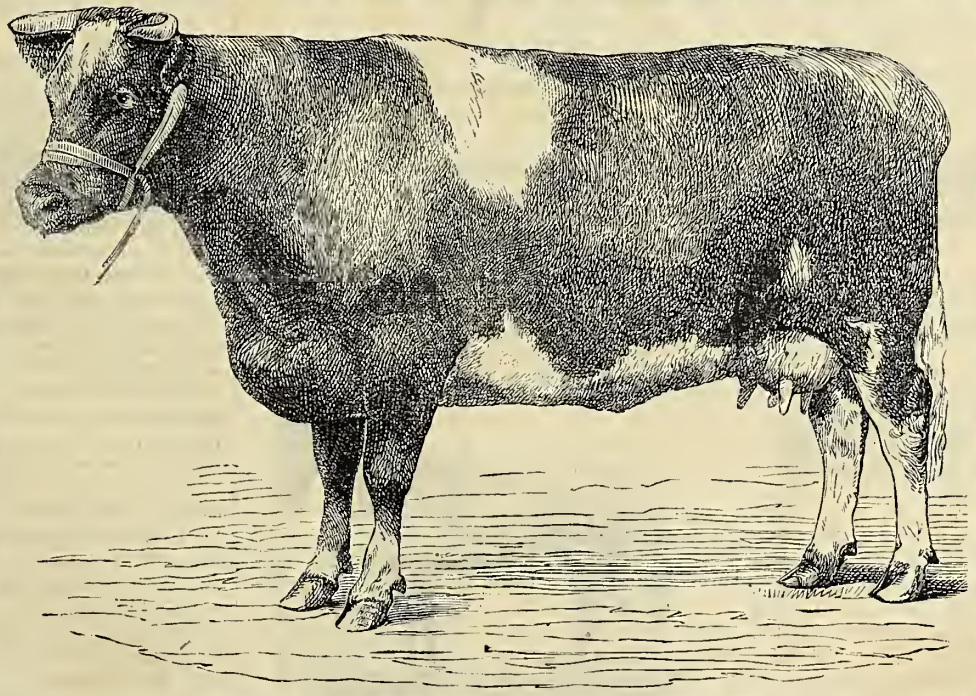
These fishes are generally soft in flesh, and do not keep well, hence if in the markets at all, are in bad condition, while the same fish, eaten a short time after its capture, would prove very delicate and acceptable. Now that fish culture is making progress, not only by States, but more slowly, by private individuals, it has been found that only those can grow the more esteemed fish, such as Trout, who have the proper waters. Those who have ponds sufficiently deep, can have Black Bass, but there are still others who have upon their places a stream not suited to either of these "game" fishes, and who are no more ashamed to grow fish "for the pot," than they are to raise chickens for "broilors," who can stock their waters with fishes that will supply most acceptable food. A beginning in the right direction has been made by the U. S. Fish Commission, in the introduction of the European Carp. This is said to inhabit parts of the Hudson, where it was introduced many years ago. The rapid growth of this fish, the great size it reaches, and the fact that it can be reared in very small bodies of water, make it probable that the Carp will become very popular in this country. A related fish is the European Roach, this, though much smaller, rarely exceeding five pounds in weight, is one of the common fishes of England and the continent. The engraving given above shows the form of this fish, which has several relatives in our own waters, and a trial only can determine whether this has any superiority for general culture over our own, and very closely related fishes, of the same genus or family,—the *Cyprinidæ*, or Carp Family. The term Roach is applied, in this country, to several different fishes; in New England, what is in other parts of the country "Sun-fish" or "Pumpkin-seed," is generally called Roach; its proper name is Bream, and it belongs to the Perch Family. Another fish, often called Roach, is the Roach Dace, which belongs to the same genus as the European Roach, and is a very handsome fish, reaching 14 inches in length. When our farmers find that they can get food from their waters as well as their fields, they will stock them with the best kinds their conditions will allow, knowing that it is not always the favorite "game" fish of the angler that will supply the most food for his table.



THE EUROPEAN ROACH (*Leuciscus rutilus*).

## Shorthorn Dairy Cows.

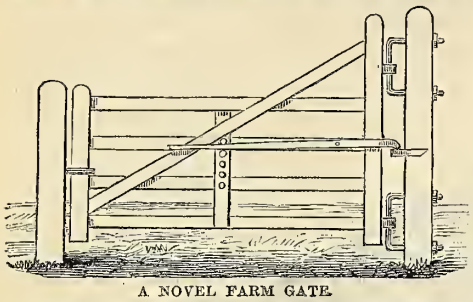
Before Shorthorns were known as a race, or rather before they grew into notoriety as a breed, for they had a reputation as a race before any record of pedigrees were kept, they were known as the best milkers in existence. It was not their square, compact form, or their beef qualities, which most attracted the attention of one of the first, and the most renowned of Shorthorn breeders, Mr. Bates, but it was that the cow he named "Duchess" was at that time the best cow in the world for milk and butter. From this cow have descended all the Duchesses in several diverging lines, but not one of her progeny has ever surpassed the old cow. When the first Shorthorn breeders began to pick up the cows from which they bred their herds, they found some that surpass any record we have at the present time. Bell, in his history of Shorthorns (pages 20 and 21), mentions one cow that gave 26½ quarts at one milking; another gave 19¼ quarts; and another 18 quarts at a time, and produced 24 lbs. of butter in one week. Mr. Bates' first "Duchess" gave 28 quarts per day and made 2 lbs. 10 oz. of butter from this milk. The first "Princess" (formerly "Bright Eyes"), gave 30 quarts a day; and this is worth noticing, because the Princess family have been so bred as to retain their milking qualities, and to-day have the reputation of being the best of the milking Shorthorns. With regard to the milking character of Shorthorns generally, one might well say, "Oh! what a falling off is there!" But in place of milk we have beef, and we may perhaps question if beef is not before milk. Yet there *are* milking Shorthorns, and as the attention of dairymen is called to the advantages of these excellent cattle for their purposes, we may look for a great improvement in this respect. We give a portrait of a Shorthorn dairy cow which may be taken as a type of the breed. The cow belongs to perhaps the most noted dairy in the world, that of Queen Victoria; noted not only for the excellence of the cows, but also for the most perfect appointments and arrangements of the dairy. In this country we have some pure-bred herds of dairy cows. An excellent dairy herd, consisting of Princess stock, is kept by Hon. Harris Lewis, of Frankfort, N. Y., perhaps the best known dairyman in America. But for the difficulty of getting a good photograph in a rural village, we should have presented here a portrait of one of Mr. Lewis' cows. This herd has been bred for milking, and the cows yield from 40 to 50 lbs. daily of milk, and 270 lbs. of butter in a year. While there are Jersey or Ayrshire herds that will surpass this yield of butter, yet the advantage of having large calves for the butcher, and fat cows when they have done milking, will, with many, outweigh the somewhat greater yield of the smaller cows. There are other good Shorthorn dairy herds in the country, all chiefly of Princess blood, and it is to be hoped that the good dairy qualities of this race will be still further fostered, until they again compare with their ancestors of nearly 100 years ago. While for general use the pure-bred Shorthorn may be too costly, the grade cow may serve an equally good purpose, if a pure-bred bull from a good milking herd is procured. The grade Shorthorn is at present a favorite dairy cow both for milk and butter; and it may serve a good purpose for those who keep grades, that one can call attention to a prominent and excellent pure-bred herd, from which bulls of good character could be procured. When we compare the Shorthorn with the wild cattle of England, or even with our wild Texan cattle, and notice the difference, which, beginning with the horns, extends through every "point" of the animal, we have a most striking illustration of the influence exercised by man over domestic animals. When to this we add the fact that in portions of the breed the milk production has been influenced in a remarkable degree, we both wonder at and respect the skill of the breeder.



QUEEN VICTORIA'S SHORTHORN DAIRY COW, COLDCREAM 4TH.

## A Lifting Gate.

While fences are used, gates and latches will be needed, however undesirable and troublesome to keep in order they may be. A gate and a latch that will meet all requirements, have hardly yet been devised, and possibly never will he, still there are



A NOVEL FARM GATE.

some gates that are much more convenient than others. In this country, parts of which are troubled, or blessed, as the case may be, with deep snows in the winter, a gate that may be lifted up as the snow accumulates, will be a convenience. A gate of this character, is shown in the annexed engraving. Rather curiously, the idea of this gate is given in a recent English paper, the "Agricultural Gazette," which has borrowed many good things from the *American Agriculturist*, for the information of its readers. The manner of its construction will he easily seen; the lifting part consists of a lever, pivoted to the gate, and pins are provided to secure the lever, as the gate is raised or lowered, to suit the necessities of the case. The parts of the hinges, affixed to the gate post, are long, and admit of the other parts sliding upon them, as the gate is raised or lowered. The secured end of the lever is fitted into a piece of iron affixed to the gate post, as shown in the engraving; the free end is held in its place, by means of the pins inserted in holes, made in the bar of the gate.

## Among the Farmers.—No 44.

BY ONE OF THEM.

### Tethering Cows and Horses.

The highways about us have borne an unusual crop of grass this season. The laws against cattle on the highways and "astrays," have been enforced with unwonted rigor, and as a consequence many cows have been seen tethered along the roadside. They are almost always tied by the horns, and the

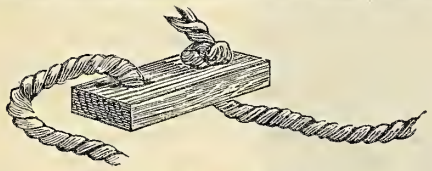


Fig. 1.—A ROPE SWIVEL.

tether-line is about 20, though often 40 or 50 feet long. Commonly half or three-quarter inch hemp rope is used, and this must he well tarred, or it will both kink and untwist, and wear out very fast. I notice that few people put swivels in the ropes, which would save them greatly. The best swivel I know of, and one I have often used, is shown in figure 1; it is a block of inch oak, three inches wide and six inches long, with two holes bored through it; these are filed out smooth and greased, or better, waxed. The ends of a rope are drawn through and knotted. I have used the same thing in iron, as shown in figure 2. It is no better. If the holes are of the right size for the rope, there will be no twisting or kinking. Still, ropes at best are poor things to tether by, and whoever once uses a chain will continue to do so. Old trace-chains, even if quite worn, do very well if the pieces are fastened together by S links, which any blacksmith can make if you give him the size of the chain; but the chain for cows is a little lighter.

Fig. 2.—IRON SWIVEL.

### How to Tether a Cow.

I disapprove entirely of the practice of tethering by the head, having known several good cows killed by this alone. When the cow is at the end of her tether, and reaching out for that which she cannot get, (this is exactly what she wants most and often first, and in this she is very human in her ways), she raises the rope or chain just high enough above the ground to get it around one of her hind feet, when she turns. This causes her to back, and that only draws the tether tighter, and her head to one side. Every motion in her attempt to extricate herself, is liable to make matters worse, for if it happens that the ground is uneven, or terraced, as many roadsides are, relief only comes when the animal falls. The fatal cases occur when the cow falls with her head under her, the neck sometimes, even, being broken. We always tether a cow by the hind leg. I forget where I learned it, but am sure I have mentioned it before in my letters to the *American Agriculturist*. We have used cords, iron fetters, and straps to fasten the chain to the leg, and decidedly prefer the strap. This is applied as shown in figure 3; pass an inch strap *twice* through a ring, and twice around the pastern of a cow's hind leg, buckling rather tight, but not tight enough to press the ring so as to hurt her. When any draft comes on the ring, it will of course be drawn away from the skin and will not chafe. The chain may be attached to the ring by a snap-hook. It is well to attach the chain for the first time in the stable, for then the cow will get accustomed to it and not kick. When lead out to feed, let her drag the chain for the same reason, and before driving the stake, let some one hold the chain in the hands a little while, so that she may find out that she is fastened and held by it. In this method of tethering, a cow will not hurt herself even though she kicks violently. Another great advantage is, that the chain drags through and spreads the manure while it is still soft. Another is, that when a rather long chain is used, and the grass is heavy, she need rarely he given over six feet of fresh feed at a time, and thus all the manure will he dropped on the space already cropped. The principal advantage, however, is the one already alluded to, by inference — that a cow thus tethered, can not hurt herself. I have never known a case of tripping and falling, or of any other entanglement than winding the chain around stakes or bushes, and thus limiting her range of feeding to a very short compass.

Fig.3. TETHER FASTENING.

### Tethering Horses.

While on this general subject, a bit of personal experience may be worth recording. I have four young horses, three of them half Orloff, one a two-year-old filly, of unknown pedigree, large for her age, gentle, good-natured, but bound to be a leader in any mischief colts can get into. She will push over fences if she can; she will jump over any thing in the shape of a fence, and when out will wander beyond all account. Our fences are pretty good,

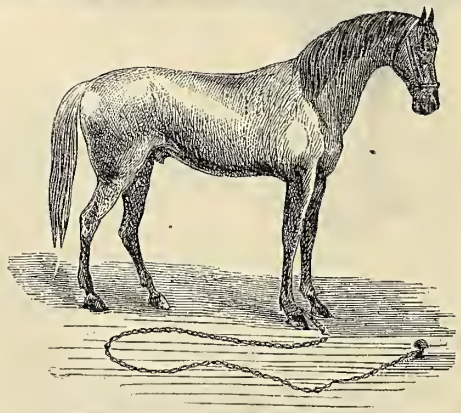


Fig. 4.—FOOT TETHER FOR HORSE.

but this creature knew no bounds, so *we bound* her. She has been tethered now for several weeks, and we have had peace. The system followed is precisely that used in the army, and I believe copied from French practice, namely, picketing by the fore foot, as shown in figure 4. By the hind foot for cows; by the fore foot for horses is the way to tether safely. Thus fastened, the horse is absolutely secure. The tether-pin may even be loose, he can not draw it out if the chain or rope is six feet long. I have seen spirited horses thus tethered, and kept wonderfully quiet. They seem to understand their helplessness, as much as a man when tied by his thumbs. I think I would risk any horse thus fastened. I have never seen one trip and fall, nor pull very hard upon the chain, nor get the chain

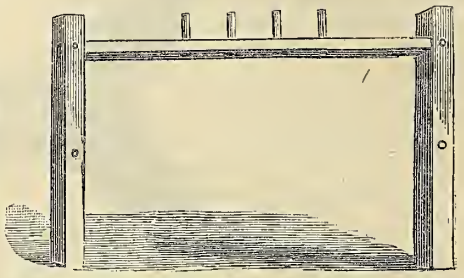


Fig. 5.—THE SOUTHERN HITCHING BAR.

around his hind leg. That is really the great danger in tethering a horse by the head. He gets a rope or chain around his hind leg, and his fore feet being at liberty, he plunges, cuts his pastern, or wears the skin off, and if no other harm happens, he has a sore very hard to heal, and liable to break out as "grease" or "scratches" at any time.

In tethering both horses and cows, it is best to shift the fastening from one foot to the other every few days, so that the skin shall not be chafed. I have used a number of patent tether-pins for chains, and decidedly prefer a simple ¾-inch pin, 16 inches long, to go through a ring, and with a big head.

### A Hitching-bar for Saddle-Horses.

How few people make any provision for friends who may call on horse-back. One must hitch his horse to a common hitching-post, probably near a border or sod-bordered roadway, or wait holding his horse until a man can he sent for. This, of course, is the style, and the thing to do,—that is—have a stable-boy within call to come and take the horse of a friend—but I don't like it. The Southern way is far preferable, and that was the style even under the old *régime*. When a saddle-horse is hitched at a common post, he of course makes the circuit of it, paws up the sod, treads down the plants in the border, if it be near by, and makes the well-raked gravel look as badly as possible. Besides, he rubs his bridle, and will roll if he can, and when his rider mounts, of course the horse is unhitched, and is at liberty to give him quite a lively turn before he can get on, unless, indeed, the rider be young and athletic, and can mount and dismount on the trot, as is done at the riding schools. I enclose a sketch (fig. 5) of the Southern plan, as I recollect it. Two posts are set, say 14 feet apart, these support a bar, in the top of which several stout pins are set. The rider brings his horse under the bar, throws the reins over one of the pins, and dismounts. The horse is safe, he cannot rub or roll, or get his head to the ground, and the bar is located where he may paw and carry on to his heart's content, and do no harm. When one comes to mount, he has his horse held for him, for he must be upon the horse in order to be able to reach the reins, and take them off from the pin.

### Saddle-Horses.

A friend, who has been spending several winters at the South, applied to me to get him a saddle-horse, and he wanted "to guide by the neck." We ride so little about here, that very few horses are brought to New York, or indeed to Eastern markets as saddle-horses. If a horse can be "warranted sound and kind in all harness," that is enough, and if he can be certified to carry a man on his back, he will readily sell for a saddle-horse.

I was fortunate in being able to find a nice "block of a horse," the English would call him a "coh," which had pleasant gaits under the saddle, and was "good in all harness," besides being as free from vice as a pet kitten. He guided by the

bit, and not by the neek, as my friend found when he tried him under the saddle. When I took oecasion to mount, for euriosity, I tried the neck pressure, and the throwing of the end of the reins over to strike on one or the other shoulder, whieh usually accompanies the movement of pressing the

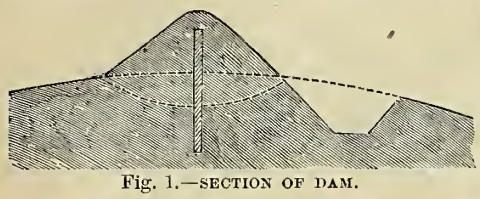


Fig. 1.—SECTION OF DAM.

neek with the rein, and was pleasantly surprised to find that the horse so quiekly took the idea, that it was clear that previous training was thus brought to mind. He proved well trained to this praetiee, and it would be very easy to teaeh him to guide by knee or stirrup pressure without the use of the rein at all. This, every saddle-horse ought to know, and it requires but a little patience to teaeh them. Ladies' saddle-horses ought always to guide by the neck. It gives the rider so much more ease and freedom than if the horse must always feel any eonsiderable pressure on the bit. I do not hold myself up as a good rider, but I enjoy riding highly, and it certainly would lose half its eharm if I felt obliged to keep a tight rein all the time. I want to give the horse his head most of the time, and to be able to trust him to not do anything foolish. Then an almost unconseious motion to the right or to the left, of the hand holding the reins, bringing the opposite rein against the horse's neek with a very gentle pressure, must turn him in the direetion indicated. This is the way we used to ride, when boys, bare-baek, and with only a halter, the end being sometimes passed around the horse's neek and tied in the ring, but oftener not. One has always the bit as a final resource, and it is always used to stop.

## A Dam for a Fish Pond.

In making a fish pond, by plaeing a dam aeross a stream, it should be borne in mind that sueeess depends upon the proper eonstruetion of the dam, whether it be large or small. Any defeet here, will make the whole useless. The main point in the construetion of a dam is, to have a complete union

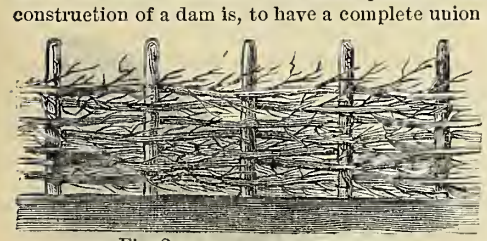


Fig. 2.—STAKES AND BRUSH.

between the earth of the bed, and that of the dam. This eannot be done by throwing the earth upon an old surfaee. A new surface must be made solid and firm, to receive the new earth. In addition, there should be a eentral eore of some strong material, that will serve to strengthen and bind the new eonstruction. In making a dam or embarkment to retain or exclude water, the beginning should be to dig a shallow ditch, removing sod or uneven ground, or if the earth is bare, to disturb it thoroughly with the pick, so as to provide binding material to unite with the bottom of the dam. The ground is preparcd as shown at figure 1. The dotted line is the original surfaee line; the hollow represents the portion of the surfaee removed, the perpendieular line in the ecnter of the embankment, shows the position of a line of stakes driven into the ground, and filled with brush woven in, or wattled as in fig. 2; the dark outline, in fig. 1, represents the dam on one side, and the excavation on the other, from which the earth has been taken. In building the dam, all the sods and vegetable matter should be placed on the outside, where these will root, and bind the surface together; the rest of the earth should be well trodden, or rammed down firmly, and if the soil is puddled by admixture of water in the proeess of ramming, the work will be better for it. The water-way in the stream should be tightly boarded or planked. Three posts may be driven or set on eaeh bank of the stream, and boards nailed, or planks spiked for a larger strueture, so as to retain the earth of the embankments on eaeh side, figure 3. A timber is fitted as a mud-sill, to the front and rear posts, and one to the eentral posts; the latter at sueh a hight, as will raise the water to the desired depth. The spaees between these timbers are boarded and planked, and may be filled in with earth, well rammed, and mixed with straw and fine eedar brush, under the eovering. If it is desired to raise the water to a greater depth, loose flash-boards may be fitted with cleats, on the eenter of the waste-way, or a wire-gauze fenee may be plaeed there, to prevent the eseape of the fish. If freshets are apt to oeeur, a sufficient number of these waste-ways should be provided, to earry off the surplus water, and prevent overflowing, and wasting of the dam.

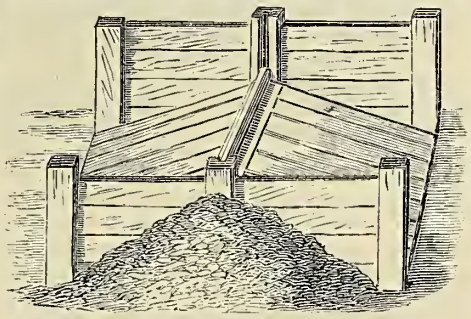


Fig. 3.—WASTE-GATE FOR POND.

The dam of a fish pond should always be made high enough for safety against overflow, and to guard against percolation, and washing away by undermining, it should be made three times as wide as it is high, with slopes of one and a half foot horizontal on eaeh side, to one foot in perpendicular hight. If any plants are set upon a dam or embaukment, they should be of a small, bushy growth, sueh as osier willow, elders, etc., but nothing larger, lest the swaying eaused by high winds should loosen and destroy the bank.

## Sowing, and Cultivating Wheat.

The Hessian fly seems to have done but comparatively little injury to wheat the present season. If, as may be supposed, this pest has suceumed to its natural enemies, and to the measures whieh have been taken to repress it, and we are to be relieved from its presenee for another period of years, it may be well to return to the praetice of early sowing. Early sown grain, both wheat and rye, have far exceeded the later grown, in yield and quality. The latter part of August, is not too early to sow. This gives the plant abundant time to tiller, and spread over the ground, and there is far greater danger that a thin stand may be winter killed, than that a thiek growth may be smothered by deep snows. Wheat, or rye, sown in August, may be thinly seeded. One bushel per acre, is suffieient upon well prepared ground; and it will be worth while to try au aere or two, sown in wide rows, at least 16 inehes apart, for the purpose of testing the utility of eultivating them. As it may be eonsidered a risk to purehase a costly implement, espeeially for eultivating wheat, before the praetiee has been tested and approved, we suggest the use of a home-made cultivator, similar to that shown in the aeeompanying engravings. A frame may be made of the form shown at figure 1, of 1½-inch hard-wood plank, put together with 3½-ineh carriage bolts. Those who have disk harrows, may fix a disk in the center, and one at eaeh side. Otherwise a wheel may be fixed in the front of the longitudinal bar, for the purpose of steadying the cultivator, and either common harrow teeth, small shovel

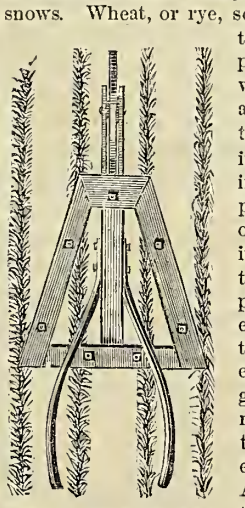


Fig. 1.—THE FRAME.

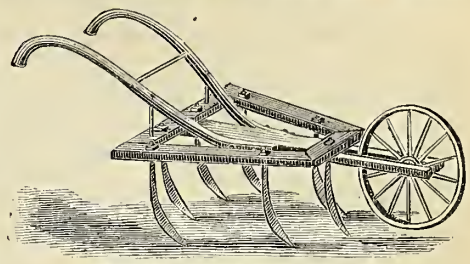
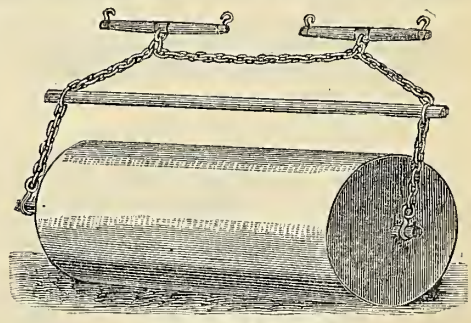


Fig. 2.—WHEAT CULTIVATOR.

plows, or eultivator teeth, whichever may be at hand, ean be used. A tool of this kind may be eonstrueted in a few hours, whieh will serve to test the value of the praetice of eultivating wheat. To sow the seed for this purpose, a drill with 8 ineh spaees should be used, and each alternate spout should be plugged up, or stopped in some manner. In the absence of a grain drill, au experimental piece of wheat may be sown, without mueh difficulty, by the use of a garden seed drill, properly arranged for the work. The eultivation of the wheat should begin as soon as the rows are distinetly visible, and it should be repeated twiee before the ground freezes, and at least onee in the spring, as soon as the soil is in good eondition for the work. It is safe to expeet the yield to be doubled; at least half the seed is saved, and the ground is eleaned of weeds. If grass seed is to be sown, that should be done after the spring eultivation, when it will be most likely to suceeed. The eompleted cultivator is shown at figure 2.

## A Method of Using a Roller.

The engraving shows a method of hitehing to a roller, which is reeommended as preferable to using a tongue. When uneven ground is rolled, the roller falling into hollows, eauses the tongue to work baek and forth, sometimes so violently, as to strike and injure the horses. This trouble is avoided, by use of the ehain and hooks. This method is mueh eheaper than the tongue, whieh requires a strong, and eomparatively eostly frame. Eaeh horse is hitched to the ehain separately, but neither ean take more or less than his share of the work, without drawing the roller out of line, and showing the irregularity; so that the objeetion which might oeeur at first sight, is really without foree. The driver will be obliged to keep the horses working equally, to cause the roller to move in a straight



A CHEAP CLOD ROLLER.

line. The roller here shown, eonsists of a white-oak log, 7 feet long and 26 inehes in diameter. An iron pin, with a large head, is driven into each end, the draft ehain is hooked to eaeh pin, and, as shown in the engraving, an iron bar spreads the ehain.

**Which is the Most Prolific Corn?**—It is a question worth considering in what direetion we shall "breed" our seed eorn. Whether it is better to encourage a growth of one large ear upon each monstrous eoarse stalk, or aim at getting two or more smaller ears, upon a medium sized stalk, one whieh may be used for fodder, and thus allow the whole plant to be utilized. In the West, the aim is to have one large ear, of whieh 100 will produee a bushel of shelled corn at least. In the East, some eorn growers are striving to "breed" a eorn which

shall produce three or more ears upon a stalk, of which 150 will yield a bushel of shelled corn. With three ears upon a stalk of this character, it is evident that the product will be at least double that of the larger-eared variety. In addition to this gain, the stalk of the smaller variety is not so coarse, and may be nearly all consumed, and the ears are better fitted for feeding whole, or for cutting into chaff together with the stalks. These items should all be taken into account, in determining to what end we shall direct our efforts, in the improvement of this, the most valuable of all our crops.

## Killing Domestic Animals.

Animals are often killed in a needlessly cruel manner, partly from thoughtlessness, but mostly from ignorance. Every farmer is likely to be called

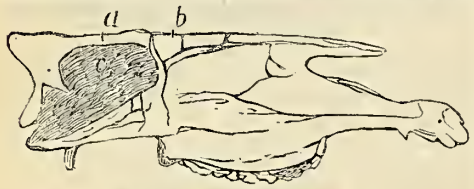



Fig. 1.—SKULL OF HORSE.

upon to terminate the life of some animal; it may be for food, or because some serious injury or fatal disease, makes it necessary to put an end to its life. There are three principal methods of killing animals: 1st. Cutting the throat without first producing insensibility; a method adhered to with such tenacity by the Jews; 2d. Rendering the animal insensible by a blow upon the head, or by piercing a portion of the brain or spinal column, by means of a sharp instrument, followed by bleeding by cutting the throat. 3d. By the use of Anæsthetics, as Ether, or Chloroform, to render the animal insensible, or if small to kill it entirely.

The first method is to be condemned for its cruelty; and because it injures the flesh, if the animal is killed for food. All intelligent butchers understand that the quality of the meat is influenced by the manner in which the animal is slaughtered. Anything like prolonged fear or torture promotes secretions which act deleteriously upon the flesh. In the second method, the practice of "pithing," which consists in producing a sudden shock to the whole nervous system, by piercing a small portion of the posterior part of the brain—known to anatomists as the *medulla oblongata*—with a sharp instrument, is probably the most humane method of producing insensibility: in this operation the man stands upon a platform above the animal, and gives a single thrust of the *spud*. The animal falls instantly, without a struggle, after which it is bled by cutting the throat. This excellent method is followed in the best large slaughter houses, but it requires great skill on the part of the one who wields the *spud*, and for this reason is not practicable for general use among farmers, who, during the year, kill but few animals. For general practice, a sharp and vigorous blow upon the head, with an axe or maul, is the best. The end to be reached is the derangement of the brain, as consciousness, and sensibility to pain, remain as long as this is unimpaired; therefore the blow should be directed at the brain. In killing an animal in this manner, many strike too low, and fail to bring the animal to the ground at the first blow, thus causing a needless prolonging of pain. Figure 1 shows the locality of the brain in the horse, as seen in a cross-section view of the skull. It will be seen that the point, *a*, is the place to strike, and not *b*.

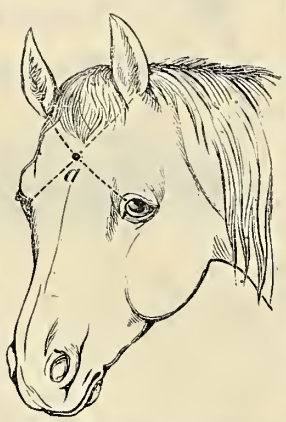



Fig. 2.—HEAD OF HORSE.

Figure 2 shows a front view of a horse's head, with the point, *a*, which is ordinarily covered by the tip of the fore-lock, and is at the intersection of the lines running from the base of each ear to the eye on the opposite side. Figure 3 shows a cross-section of the skull of an ox. The brain, *c*, is smaller than in the horse, and protected by thicker frontal bones. Figure 4, *a*, gives the point to be aimed at where the blow should be struck, and that is at the intersection of the lines joining the base of the horn and the opposite eye. The point is not "between the eyes" as may be seen by the position of *b*, in figure 3. There is no brain below the surface between the eyes. In all cases the head should be securely fastened, and it is advisable to blindfold the animal. In the far West, where good marksmen are the rule, slaughtering is frequently done with the rifle. In proper hands this method is to be commended as sudden and painless, but no one who is not a "dead shot" should attempt it, as a wounded and infuriated ox may be a source of much trouble. A small animal should be treated as mercifully as a large one, and be made instantaneously insensible. Calves, sheep, and swine, are usually tortured by throat-cutting, when a single sharp blow upon the head would end their misery; the throat can then be cut, and the bleeding accomplished. To "stick" a hog so that it will die by inches is altogether wrong. A few judicious blows with an axe will make the hog-killing day a far more humane and less noisy one in many a farmer's yard.

The third method, taking life by the use of anæsthetics, is difficult and expensive with large animals, and is rarely practised with small ones, though where it is necessary to end the life of a dog,

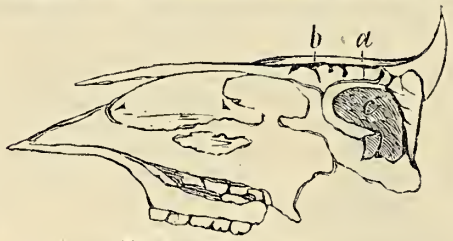



Fig. 3.—SKULL OF OX.

cat, or other pet animal, it may be resorted to. The animal, if placed in a small tight box, with a sponge or cloth wet with Ether, or Chloroform, will soon become insensible, and die with no suffering.

## Fattening Poultry for Market.

No fowl over two years old should be kept in the poultry yard, except for some special reason. An extra good mother, or a finely feathered bird that is desirable as a breeder, may be preserved until 10 years old with advantage, or at least so long as she is serviceable. But ordinary hens and cocks should be fattened at the end of the second year for market. Feeding for this purpose may be begun now. When there is a room or shed that can be closed, the fowls may be confined there. The floor should be covered with two or three inches of fine sawdust, dry earth, sifted coal ashes, or clean sand. The food should be given four times a day, and clean water be always before the fowls. A dozen or more fowls may be put at once in this apartment, so that there may not be too many ready to sell at one time. The best food for rapid fattening, for producing well flavored flesh and rich fat, is buckwheat meal, mixed with sweet skimmed milk, into a thick mush. A teaspoonful of salt should be stirred in the food for a dozen fowls. Two weeks feeding is sufficient to fatten the fowls, when they should be shipped for sale without delay, and another lot put up for feeding. If the shed is kept dark and cool, as it should be, the fowls will fatten all the quicker for it.

**The Cost of Soiling Cattle.**—The supposed large amount of extra labor involved in soiling cattle upon green fodder crops, cut and carried to them in yards or barns, is the greatest objection urged against the system. While a certain amount of extra labor is needed, this is by no means so onerous or so costly, as to overcome the advantages of the system. By the use of a one-horse mower, hay rake and wagon, green rye, clover, oats or millet, sufficient for a day's fodder for 20 cows, can be mowed, gathered, loaded and hauled a quarter of a mile to the stable in one hour, by a smart boy of 14 or 15 years. The labor of feeding, watering and

Fig. 4.—HEAD OF OX.

cleaning the cattle, will occupy two hours more. If half a day is thus taken up, it will cost about a cent and a half a day per cow, for the labor. The saving of manure will more than pay this, and there are other savings about the system, which will sum up in all to a respectable profit. It is on small farms that the advantage of soiling is the greatest.

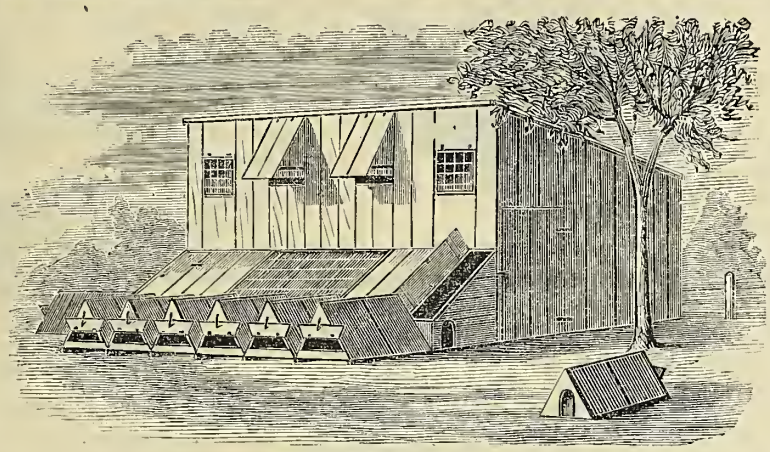
## How Domestication has Modified the Hog's Head.

Probably no part of any domestic animal has undergone greater modifications, both in internal structure and outward form, than the head of the hog. Indeed, the whole body of the animal has changed so wonderfully, that the wild hog and our finest specimens of the improved breeds, would hardly be thought to be the wild and domesticated forms of the same species. As Darwin, in his wonderful work, "Animals and Plants Under Domestication," says: "The whole of the exterior of the skull in all its parts has been altered; the hinder surface, instead of sloping backwards, is directed forwards, entailing many changes in other parts; the front of the head is deeply concave, etc." As to the teeth, the incisors, or "nippers," do not touch, in the domesticated hog, and the canine

WILD BOAR AND DOMESTIC HOG.

teeth are small and differently situated from what they are in his savage ancestors. In the highly domesticated animal its head is much shortened,

so that its ratio to the body is as one to eleven, while in the wild hog the long head, with its formidable snout, is one-fifth of the whole length of the animal. Why should the head of the hog, especially, undergo such remarkable changes in passing from the wild to the domestic state?—To answer this question, we must remember that the wild hog, in his search for food, is obliged to do much plowing, or "rooting," in the earth, and that this requires the exercise of strong and long muscles, as well as a long and pointed head. The cultivated races no longer find it necessary to root in the earth, and the muscles required by the wild animal in this work become inactive, and diminish in size from disuse. The long snout is no longer essential, and it, by degrees, shortens into the stub nose which we see in the improved breeds. At the same time other organic changes have been made, and we find the whole head modified to suit the weaker muscles, shorter nose, and the new outward conditions. Again, man has, during all these centuries, bred the hog for a special purpose, namely, flesh and fat, and the head has been modified to suit the tendencies of the rest of the body—and fat abounds wherever it can find a place of deposit.

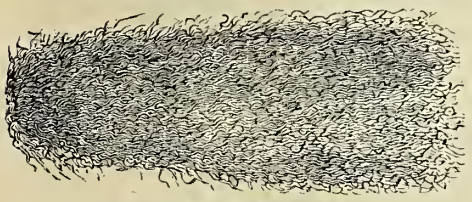


THE CHICKEN HOUSE.

The most highly improved pigs of to-day would find it a severe task to get their living in the rough way of their wild ancestors; but should they succeed, and continue outside of man's care, each generation would acquire characters which would better and better fit it to surrounding circumstances, and in the course of time the rooting organ would again appear in all its strength and utility—the swine would have run wild. We give, for the sake of the contrast, a head of the wild hog, and one as modified by the conditions which man has imposed.

## The Value of Cross-bred Sheep.

To the general farmer there is most profit in rearing grades. This is true of any animal, whether



SAMPLE OF CROSS-WOOL.

beef cattle, dairy cows, sheep, pigs, or poultry, it is the grade that pays the farmer best. There must be pure-bred stock, to supply the material for the grades, but breeding of pure-bred animals, and of grades for market purposes, must be kept distinct. This is well exemplified in the western grazing business in which the coarse Texan cows are crossed with pure Shorthorn, or Hereford, bulls, and the progeny are sent to Europe, to compete with the best butchers' cattle there. Grades are larger and more productive than the pure-bred animals, and as they cost less, there is the more profit in them. In regard to sheep, this is thoroughly well proved. Grade Merino wool, is more profitable than the pure-bred, and the carcass of a cross-bred sheep is better mutton. The Merino, or common Grade Merino, make perhaps the best foundation for a farmer's sheep, when crossed with South-down, or Hampshire-down; the produce is a plump, fat, but smallish lamb, with the black face and legs, so popular in the market; crossed with a Cotswold ram, the lambs are large, and when six months old, will weigh more than the dams; and the fleece is in demand for both clothing and for combing purposes. As mutton, this cross is the best and cheapest; the South-down, which is really, when pure, the best mutton, is neither so large in carcass, nor do its grades, under the best of care, give either the wool or the meat, that the Cotswold grades do.

The frequent references to the advantageous crossing of the fine and coarse-wool sheep, which have been made in the *American Agriculturist* for a few years past, have created considerable interest, and many persons have experimented in this way. Joseph Harris, of Rochester, N. Y., well known to our readers, has been very successful in thus crossing grade Merinos with Cotswolds, and has produced some remarkably fine sheep and lambs. Mr. J. L. Gerrish, of New Hampshire, who has also been working to the same end, sends a sample of the cross-wool, of which we have made an engraving. This wool, as may be seen, is of considerable length, some being five inches or more, and while it is long enough for combing purposes, it retains the fineness and some of the peculiar curl of the Merino wool. This cross-wool is valuable for manufacturing, and the carcass is excellent mutton.

## A Breeding House for Chickens.

J. H. Kemp of Germantown, Ohio, whose poultry house described in the *American Agriculturist* for June last, page 226, has been much commended, sends us a plan of his hatching and rearing house, of which an engraving is here given. The house has been in use for three years, and the arrangements prove to be convenient and healthful, the loss of chicks, having been but two in a hundred last season, which was exceptionally unfavorable, as the average loss, during the whole period, has been but one in two hundred of chicks taken from the nest. When a chick is safely hatched, and is strong enough to be removed to the coop, there is no reason why it should be lost, except through carelessness, or faulty management while in the coops. All the accidents or diseases, which kill the chicks, arise in this way, and gapes, which is the dreaded evil attendant upon young broods, is especially a result of bad management, while in the coop or runs. A good method of constructing and managing the coops and runs, is therefore of the greatest importance. The building in question is well adapted for this end. It is 12 x 14 feet on the ground, 9 feet high at the peak, and 6 feet at the eaves. There are two windows on the south side, and two doors, hung to open outwards from the bottom. A roost runs all around the outer edge, which is intended to accommodate 100 chicks, and give them ample room; but in no case are more than 100 chicks kept in one house. There is a feeding room, 3 feet high, joining the house at the south side, and one foot high at the side or eaves, meeting the coops, and 4 feet wide, with a half glass roof in the center, a door at each end on the roof, to clean and feed. A 2-inch hole is made at the rear end of the coop in the feeding room, to pass feed through. The coops used, are the same as those described by Mr. Stoddard, in his book entitled "An Egg Farm," with the scantling, used to slide the coop back, sawed off so as to let the coop meet the bars of the feeding room. The rear end of the coop, has a hole large enough for the passage of the chicks but too small for the hen; this meets a similar hole in the wall of the feed room. When the front door of the coop is open, as shown in the engraving, the chicks can pass in and out freely. The building is used as a hatching room, until needed for young chicks. No chicks are hatched later than May. The young birds have an unlimited range, except on cool mornings, when they are restrained until the ground is dry and warm. The house is cleaned every morning, and the coops every week; the coops being then littered with dry earth. Mr. Kemp has never had a case of gapes, or any other disease among his chickens, which is an indication that his place is well arranged.

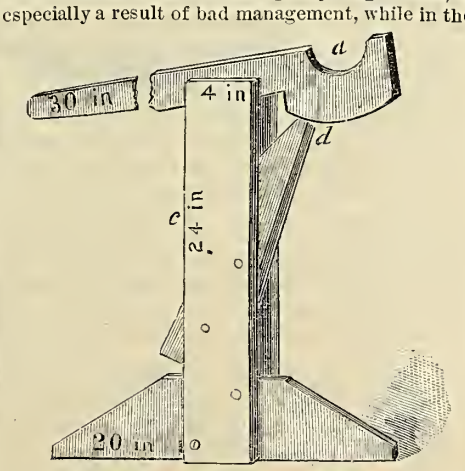



Fig. 1.—MICHIGAN WAGON JACK.

2.—CATCH BOARD.

## Some Wagon Jacks.

Mr. Edwin M. Fairchild, Lansing, Mich., sends sketches of a home-made Wagon Jack, which has been in constant use for ten years, and has proved most satisfactory. The drawings were made with such care, the measurement being placed upon them, that the engravings tell nearly the whole story. Figure 1 shows the Jack when in

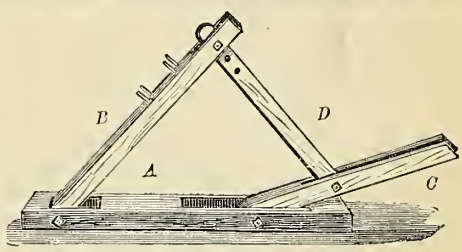



Fig. 3.—SCHLUETER'S WAGON JACK.

position to hold the axle, at *a*. When not in use, the lever falls down out of the way, and the affair can be hung up in a handy place. Figure 2 shows the "catch board," and the dimensions proper for a Jack, for an ordinary wagon, buggy, etc. It is so shaped and fastened by a pin between the upright parts of the Jack, that it is pushed in position, *d*, by the foot at *c*, when the axle is raised; and falls back of its own accord when the lever is raised a trifle to let the wheel down. All the parts are made of inch stuff, the foot board, catch, and lever should be of hard wood; the upright boards between which they are placed, can be of pine or other soft wood. Persons who see this simple and convenient wagon jack frequently say, "Why don't you get it patented?" but the inventor thinks that such simple things, which any one can make, ought to be contributed for the common good, and in the same spirit we commend it, to any who may be in need of a good wagon jack.

ANOTHER JACK.—Since the above was in type, we have seen a very simple and effective Jack, made by Mr. Karl Schlueter, of Bergen Co., N. J. This is an ingenious combination of levers, the operation of which will be readily understood from an inspection of figures 3 and 4. It may be readily made from a few pieces of 1¼-in. plank. The base, *A*, is

34 in. long and 6 in wide; near one end is an opening which admits the end of the lever, *B*, which is fastened by a bolt, upon which it moves; this is 40 in. long and 3 in. wide, and has several stout wooden or iron pins, upon which the axle of the wagon rests. At the opposite end of the base is the lever, *C*, fastened below by a bolt; this is 26 in. long, and 3 in. wide; between *B* and *C* is another lever, *D*, 28 in. long, and 2¼ in. wide; this plays in slots in *B* and *C*, as shown in the engraving; it has several holes near each end, to allow it to be adjusted as desired by means of strong iron pins passing through *B* and *C*. The Jack being placed so that one of the pins on *B* catches the axle, the lever, *C*, is thrown over so that its upper end rests against *B*, as seen in figure 2; this raises *B*, and consequently the axle, and the Jack is so locked that the greater the weight the firmer it is. Throwing *C* back again lowers the axle and releases the Jack.

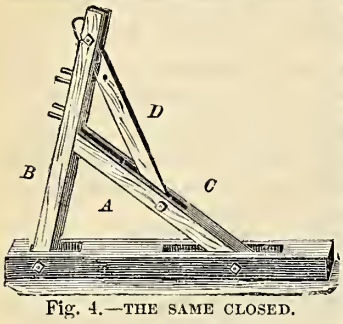


Fig. 4.—THE SAME CLOSED.

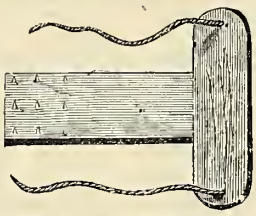


Fig. 1.—CALF MUZZLE.

## Hints and Helps for Farmers and Mechanics.

A CALF MUZZLE.—Dr. W. A. Neville, sends a model of a muzzle, to prevent a calf from sucking the cow while being weaned. It is made of a piece of board 4 inches wide, and 12 inches long, to reach from the top of the head to the nose; a cross piece of the same size, is fastened as shown at figure 1. Holes are made in the latter piece, to admit of a small rope or a strap, to fasten it to the head of the calf. At the lower end of the muzzle, a few screws or nails are put through, projecting outwards, and are filed to points. When the calf attempts to feed at the teat, these points are disagreeable to the cow, and she will not stand to be sucked. In a very little time, the calf ceases its attempts.

A FEEDING RACK FOR SHEEP.—"A. J. H.," Lemont, Ill, sends a method of building a feeding trough, and rack for sheep. This trough is 16 inches wide, and 4 inches deep, with cleats nailed across, near the ends to which the feet or supports are fastened. The rack is held by an upright piece at each end, in which holes are bored; pins are inserted in these holes, to hold the rack in place above the box when grain is feed to the sheep. The sheep can feed on both sides of the rack, if it is placed in a yard, or the middle of a shed; or on one side only, if it is built against the inside of a shed. The end of the trough is shown at figure 2, and a side view of the same is given at figure 3.

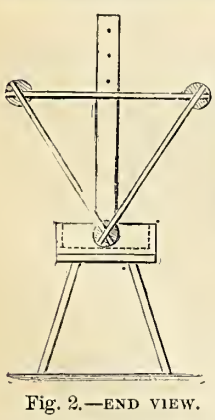


Fig. 2.—END VIEW.

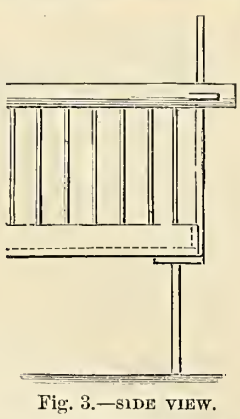


Fig. 3.—SIDE VIEW.

AN END BOARD FOR WAGONS.—"A. W.," Tecumseh, Mich., sends drawings of an end board for a wagon; by which corn ears, or any other similar material, may be easily unloaded. The engravings, figures 4 and 5, tell the whole story. The board is attached to the wagon box by two strong hinges, and the ends should go outside of the box.

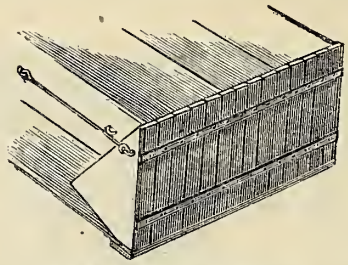


Fig. 4.—END BOARD CLOSED.

A ROOFING STAGE, by "R. T.," Evergreen, La., is made of a piece of 2-inch strap iron, or old tire, bent as shown at figure 9. The iron is twisted in the middle, so that the edge is turned perpendicularly. The hook at one end holds to the roof strips, and the other is bolted loosely to a piece of 2 x 6 timber as long as may be desired; the whole length of the roof, if thought proper, but not too long. Several holes may be punched in the lower end of the strap, so as to lengthen or shorten the stage. The 2 x 6 strip serves as a guide to lay the shingles, shakes, or boards, on the roof, and a stage to support the workman. As the bolts are loose, one end may be raised at a time when it is to be moved for another row of shingles.

A SPRING, AND HINGED LATCH, for gates and doors, is shown at figures 6, 7 and 8. This latch is the invention of P. H. Hough, of Sussex Co., N. J., but is not patented, and is free to be used by all, who have the ingenuity to make it, or may employ a blacksmith to do it for them. The bolt is shown at figure 6; the box for the bolt at figure 7, and the bolt as attached to a gate or door, at figure 8. The bolt is hinged in the middle, so that it opens backwards only, and is returned to its place after opening, by the spring fixed to the back. When the door is opened, a strong push is given, sufficient to move the spring, and permit the hinge to work. When the door is closed, the edge of this striking the bevel of the bolt, the latter is pushed back into the box, sliding upon the pin in the box, and which moves in the slot of the bolt; and pressing upon the spring fitted in the rear end of the bolt. The spring causes the bolt to shoot back again, as far as the pin in the slot permits it, which enables it to hold the door shut, until it is forcibly pushed open again. It is obvious that this bolt is not intended as a permanent fastening, but will be found useful upon gates, and inner doors, or where separate locks are used, to secure outer doors. The principal convenience seems to be, that no handles are required for the doors, when this bolt is used.

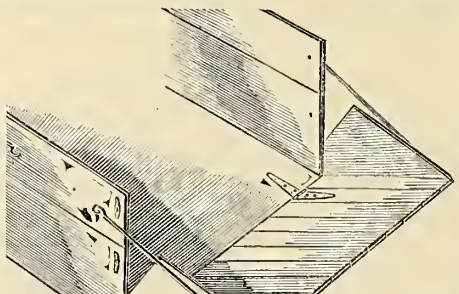


Fig. 5.—END BOARD OPEN.

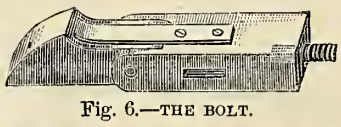


Fig. 6.—THE BOLT.

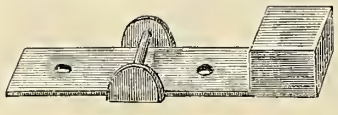


Fig. 7.—BOX FOR BOLT.

## Success with Sheep.

Many successful ventures have been made in sheep-herding in the West, but more have resulted in loss. To prevent risk, there should be no ventures. A venture is of necessity a risk, and sheep-herding is a staple business, that, if entered judiciously, should have no element of a venture about it. Otherwise the risks are so great, that failure is almost certain. If a man understands the management of sheep, and is possessed of business habits, he may go to keeping sheep, with every probability of overcoming every adverse obstacle that may confront him. If he has had no experience, every probability is against success. It is not enough that one has the means to purchase a flock, and provide every requirement for their care; there are numerous exigences, which will arise, when damage will be sustained if proper precautions or remedies are not used. If a man desires to invest money in the business, and can procure an experienced partner, in whose integrity he can place confidence, he may do well with his venture, for it is a venture; but there must be economical purchase at the outset; a good range with water, timber shelter, and grass for hay; intelligent breeding, careful supervision, judicious feeding, a well defined plan, and if there is a partnership, a clear and simple written contract should be made out, so that no dispute can arise as to division on profits, risks, or losses.

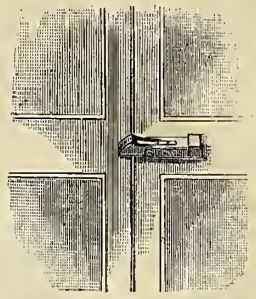


Fig. 8.—BOLT ON DOOR.

Fig. 9.—ROOFING STAGE HOOK.

**Export of Provisions and Breadstuffs.**—The export of all kinds of agricultural products to foreign countries continues to increase, and the promise for the coming year is even more encouraging than that of last season. Another unsatisfactory harvest is impending in England and in France, and the supply by which the deficiency in both countries is to be made up is expected from America. Both good and evil grow out of this. The people generally are assured of an abundant supply of food of all kinds without any inconvenient rise in prices; so far, good results. But the farmers are in an unhappy predicament. As some rise in the values of food is inevitable, the wages of the laborers advance in proportion, and the rents of farms must be paid, for the land-owner has a first lien on the crops for his demands. With short crops for some years, the English and French farmers have been brought near, if not quite to, financial ruin. Hundreds of English farmers have become bankrupt, and great distress has come upon the agricultural class. While we can not but sympathize with the sufferers, yet it is impossible to be otherwise than gratified that we are able to supply the needs of the general population, and to avert, by means of our abundant crops, the danger of famine and starvation to thousands of poor people who never know what it is to have more than a single day's supply of food ahead of their wants.

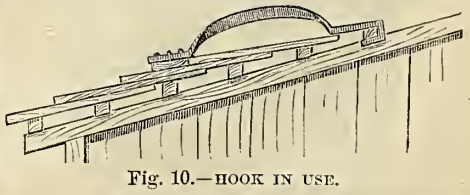


Fig. 10.—HOOK IN USE.

**The Plague of Flies.**—Some mitigation of the plague of flies, which torments the cattle and

horses in the stables at this season, may be procured, by fumigation, or as backwoodsmen say, "a smudge." A dense smoke may be made by various methods. Dried cow-dung burned upon a pan of live coals, produces a thick, pungent smoke, which will soon clear a stable of the pests. Common tar, burned by stirring it with an iron rod heated to a dull red, so as not to inflame it, will make a thick smoke, which is not only disagreeable to flies, but is regarded as a purifier of the atmosphere, and deodorizer as well. To keep the stables clean and free from strong odors, it is well to use on the floors a plentiful sprinkling of ground gypsum, or a solution made by dissolving one pound of Copperas, in a pailful of water, and freely scattered around, will be a useful disinfectant.

Fig. 1.—THE BOT-FLY.

## The Horse Bot-Fly, and Its Ways.

Nearly ten years ago, we gave a history of the Bot-fly, with illustrations; but ten years in the life of a journal like ours, brings an almost entirely new set of readers, and inquiries from recent comers occasionally make it necessary to treat subjects of such general interest as the Bot-fly anew, as the new generation can not be, as a general thing, referred to back volumes. The Horse Bot-Fly, (*Gastrophilus equi*), belongs to the great family of *Diptera*,—the two-winged insects. The most familliar examples of these, are the troublesome horse-flies and mosquitoes. The Bot-Fly, figure 1, is brown in color, and about the size of a honey bee, and when on the wing it might be mistaken for one. The body of the female is more tapering than that of the male, figure 2; she deposites her many eggs singly upon the hairs of the lower jaw, neck, and forward legs of the horse. The long and blunt ended eggs, figure 3, are so securely glued to the hairs, as to be removed with the greatest difficulty. The eggs hatch in a very short time, and the tickling sensation produced by the young maggot, induces the horse to bite and lick the places where they are, and they thus pass into his mouth and stomach. The Bots, as the maggots are called, are short and fleshy, of a whitish color, becoming brown by age. They are provided with hooks around the mouth, and rows of spines about the body, by both of which they fasten themselves to the lining of the stomach, and sometimes to the intestines of the horse. Figure 4 shows a number of these larvæ partly buried in depressions which they have made. After remaining for six weeks or two months, the Bots pass away from the horse, bury themselves in the dung, and assume the dormant pupa state (figure 5), in which they remain until "fly time" comes again.

Fig. 2.—FEMALE.

Fig. 3.—EGGS ON HAIRS.

When the maggots are attached to the stomach in large numbers, they may impair digestion, and in the worst cases even produce death. The common belief that Bots eat through the coats of the stomach is not well sustained. In general they do not *eat* the wall of the stomach but irritate it and cause a formation of pus and other excretions upon which they feed.

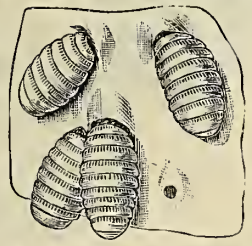


Fig. 4. GRUBS IN STOMACH.

It is difficult to distinguish Bots from other sources of stomach irritation. If the tongue is red, the horse keeps extending its head and raising its lip, and the maggots are found to pass out with the dung, it is a clear case of the Bots. So far as known, nothing can effectually remove the troublesome parasite from its hold when once fastened in the stomach. The various worm medicines are of little avail. The animal must be well fed, and a dose of physic will help remove of the Bots when it is time for them to change their residence.

Fig. 5.

## The System of American Agriculture.

We have been repeatedly taunted by foreign agricultural journals about our low average production of grain and other crops, and the very large products of some English farmers have been held up as examples for us to follow. English farmers boast of 60 to 70 bushels of wheat to the acre, and yet American wheat, averaging a miserable 12 bushels per acre, is sold in the English markets in successful competition with their much heavier crops. Truly, "the race is not to the swift, nor the battle to the strong," but the skillful adaptation of means to ends, and doing the best with what we have, are more conducive to success than brilliant show. It is doubtful if any American farmer could profitably produce 50 bushels of wheat per acre. It is not a part of our system to do that. We can do some things, and having learned what we can do, we have gone to work and done it well. We have learned to work cheaply, and effectively, and the system under which we have worked, wrought out by force of circumstances rather than by choice, has led us to success. The English agricultural journals now no longer slight our averages, but are free to confess that the defeat in agricultural enterprise of English farmers must be "due to causes which are inherent in themselves and in their ways of conceiving and carrying out their work." Probably the cause, or one of the causes, could be pointed out from this side. If American farmers employed laborers to do their work, while they rode out to supervise them and give orders, and twice a year were to pay out to the owners of their farms in rent a sum nearly equal to the average fee simple value of their farms, there might be as bitter complaints and great distress here, as there is just now with them. Our system of agriculture is a simple one. The American farmer is his own landlord, and is not above holding his own plow or driving his own reaper. He is obliged to do this whether he be willing or not; for if he has a good capable workman to do it for him for a few years, this same workman will soon be the owner of a farm himself, and at work on his own account. In this country a farm laborer who remains a laborer, must be a poor inefficient workman, or he would soon be his own employer. The scarcity of labor forces the farmer to use labor-saving machinery, and that cheapens his products. This is our system, and it is one that has given us the control of the world's markets, just now at least, and perhaps permanently. There is nothing for us to complain of in this. On the contrary, it is cause for gratification that, by industry and skillful management, we have succeeded in our business; and it is a warning to us that we must hold what we have gained by renewed industry and economy in our management. We have probably before us a period of small profits, and one calling for close management. We have had our good time in some past years; we must now take our turn of a few lean but still healthful years, which are before, and may soon be upon, us.

**A Farmers' Club.**—A correspondent informs us that a Farmers' Club has been started at Fairhill, Bucks Co., Pa, on July 10th last, and that it would not have been formed but for the advice given in the *American Agriculturist*. We have just one bit of advice to give now that the Club is formed. Have as few rules as possible, and discuss them as little as possible. There will almost always be in such a body one or two who should be in the Legislature; they are great on the Constitution, and "parliamentary usage," and manage to waste valuable time which should be devoted to agricultural topics. A body of earnest farmers need few if any rules to keep them in order. We wish the Fairhill Club much success, and hope it may not be troubled by these expounders of the Constitution and the law. W. H. Pounds is President, and W. Curtis, Secretary, of this new Society.

## A Brace for a Kicking Horse.

Those so unfortunate as to own a kicking horse know something of the patience that it requires to get along with it—and will welcome anything which will prevent the kicking and finally effect a cure. The writer knew a horse, which was so bad a kicker that after various trials, and after passing through many hands, and getting worse all the time, to be perfectly cured in the course of three months by the use of the device here given. This is a simple brace, which acts upon the fact that if the head be kept up, the horse can not kick. A kicking horse is like a balance, when one end goes up, the other must go down. The brace, shown in place in figure 1, and separate in figure 2, consists of a ½-inch iron rod, which may be straight, or for the looks, bent into a graceful curve. It is forked at both ends; the two divisions of the upper end are fastened to the two rings of the bit, while the lower ends fit upon the lower portion of the collar and hames. The upper ends can best be fastened to the bit by winding with wire, which should be done smoothly, so as not wear upon the mouth. The lower end is secured by means of a strap fastened to the upper loop, and passing around the collar is buckled through the hole in the lower part of the end of the brace. The brace need not be taken from the bit in unharnessing. Any blacksmith can make such a brace, taking care to have it of the proper length to fit the particular horse. Keep its head at about the hight as when "checked up," and the horse will soon be cured.

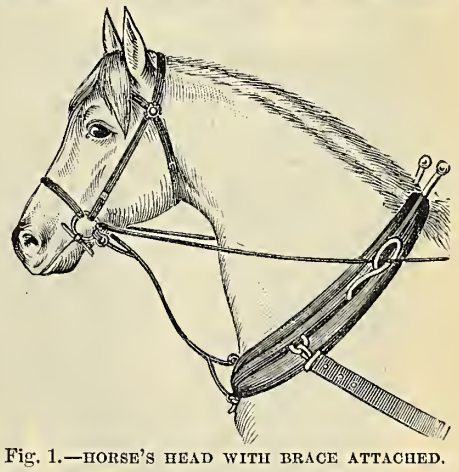


Fig. 1.—HORSE'S HEAD WITH BRACE ATTACHED.

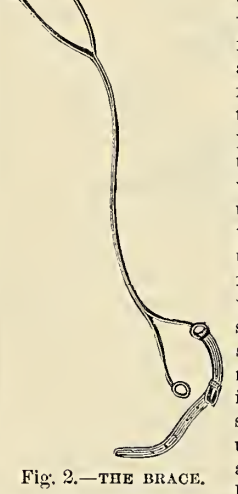


Fig. 2.—THE BRACE.

## A Talk About Strawberries.

"Hudson's Bay," "Crimson Cone," "Keene's Seedling," "Methven Scarlet," "Baltimore Scarlet," and a few others were the varieties with which our strawberry experience began. It would be difficult to find either of these now. Then came "Hovey's Seedling"—and what an improvement it was upon all others! We had strawberries then with a strawberry flavor, and whoever had the "Hovey" knew what a strawberry should be. We do not often see or hear of this variety now, but where is its equal?—Does the present generation, except those who now and then get a taste of a wild strawberry, know how a strawberry ought to taste? Isn't it about time to give up the musk-flavored berries of the "Triomphe de Gand" order,

or the great, coarse, sour things with no special flavor whatever (we could name a dozen to which this description applies), and try to raise straw-

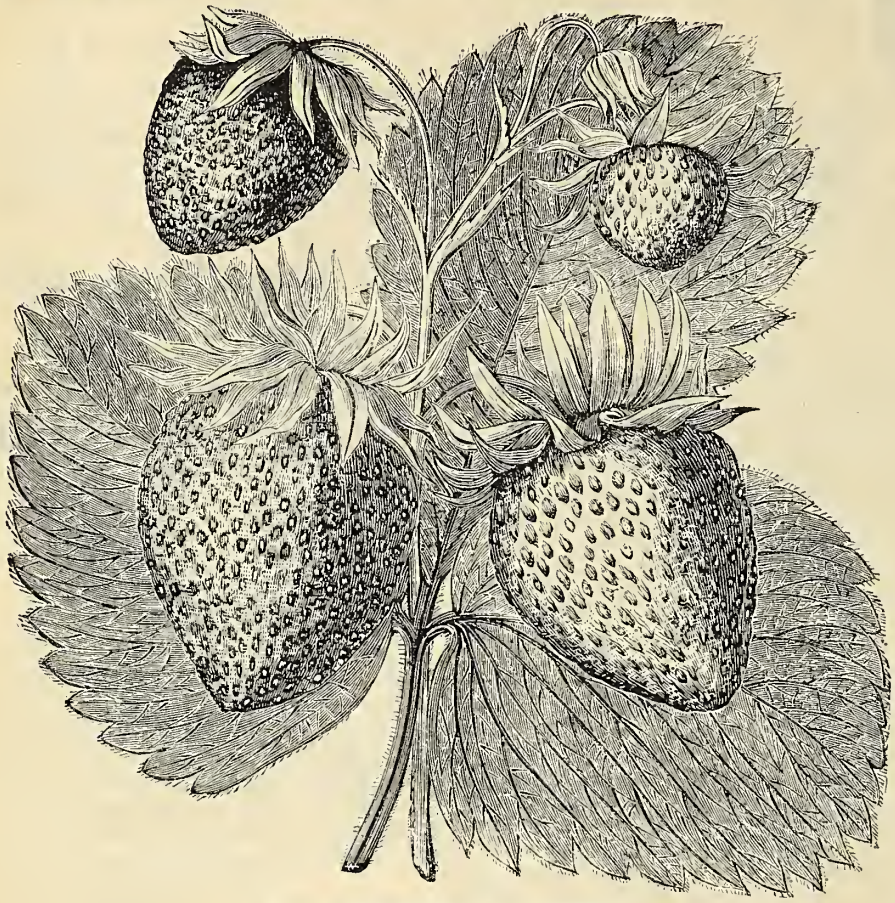


Fig. 1.—THE GLENDALE STRAWBERRY.

berries, not for size, but for quality? As we look back upon the past thirty years of strawberry culture, we can see no improvement in the direction of *quality*. Now and then a variety has appeared, like "Brooklyn Scarlet," "Boston Pine," or "Burr's New Pine," of superior excellence as to flavor, but lack of productiveness, lack of size, or lack of something, has caused them to be dropped from cultivation. Whoever will give us a fruit equal in all respects to Hovey's Seedling, without its faults, will be a benefactor to his race—at least that portion of it who remember how strawberries should taste. With this reminiscence—some of our friends will call it a "growl"—we give a few notes upon some of the more recent strawberries as they have appeared in our own grounds and elsewhere.

*Glendale*, so-called because it was found as a chance seedling in the Glendale Cemetery, Akron, Ohio. Our first acquaintance with this fruit was through a basket of it brought by J. T. Lovett, from his "Monmouth Nursery," Little Silver, N. J., and we afterwards saw it growing in the grounds of E. P. Roe, at Cornwall-on-the-Hudson, N. Y. The carrying qualities of this variety seemed so marked that the accompanying engraving was made from the specimens, which Mr. Lovett says were from plants in ordinary field culture. The engraving shows the shape and average size, and also, what seems to be a peculiarity, the very ample calyx or "hull." This is thought to furnish protection in case a frost comes while the berries are setting; a sufficient "neck" allows of its ready removal. The color is a rather light scarlet. The plant, with Mr. Lovett and Mr. Roe, is remarkably vigorous, an abundant bearer, with a very strong fruit stalk. As to quality, that depends upon one's standard. As strawberries run, we should say "good," but not "best"; still quite as good as one looks for in a market berry. It has one qualification desirable in strawberries—that of lateness. The "Kentucky" has heretofore been regarded as our latest variety, but in a dry season it ripens almost as early as any. The "Glendale," according to Mr. Lovett (in some notes prepared at our request), in two years' cultivation, is fully a week to ten days later in time of ripening than any of the sorts usually cultivated, such as "Wilson," "Charles Downing," "Monarch of the West," etc. Mr. Roe, in his latest catalogue, says of the berries: "Their firmness and lateness, however, may make them valuable for market."

*Sharpless.* — No berry of late years has been so generally praised as this, and if it substantiated all that has been claimed for it, it would indeed be a wonder. In our experimental rows, one could pick out the "Sharpless" at a distance, so much larger were the plants than all others. It has not been long enough in cultivation for all its faults to be learned. We can only say that it is of the largest, and the handsomest; remarkably good, as well as unusually firm for so large a berry. It has this past season commended itself for general trial. Grown in separate stools, it promises great results.

*Golden Defiance.*—This berry, to judge it upon Mr. Roe's grounds, presents the unusual case of a fruit which proves better than the claims made for it. In his specimen bed the amount of fruit was wonderful, the clusters filled out to the last blossom, fruit of good shape, large enough, handsome in color, apparently firm enough for market, and of unusually good flavor. It is one of the later kinds. Taking the plant as we saw it, and its behavior with Mr. Roe in former years under neglect, we regard it of such promise that we give an engraving of an average cluster.

*Duchesse* is another instance of Mark Tapley's "coming out strong under difficulties." But little has been said about it, and it persists in speaking for itself. On our grounds it was the earliest and one of the most productive of over a dozen varieties. In Mr. Roe's specimen bed, from which no fruit had been picked, it laid in piles, a marvel of productiveness, second only in this respect to

*Crescent Seedling.*—Probably no strawberry, new or old, can equal this in the quantity of fruit to the acre. When the fruit is grown, we prefer to let some one else eat it. Mr. R. says that "berries that ripen fully in the sun are very good." Our chief knowledge of the fruit is derived from that grown on his ground, "fully in the sun," save that the berries covered up one another, and had he looked at the faces of those who tasted them—including some ladies of excellent taste and judgment—he certainly would have searched for some berries that were ripened "fully in the sun." Still it is so productive that it will prove profitable for a near market, as it looks well; but in quality, as we have seen it, it is even worse than the "Shaker Seedling," which has happily dropped from cultivation.

*Forest Rose.*—The most beautiful of all recent berries, and as good as it looks. It is of large size, bright color, firm surface, and of excellent quality. It is not so productive at the East as at the West, but with good culture will give good results.

*Champion.*—When this was first exhibited it was a great coarse, sour fruit, with nothing but size to commend it. It had been grown with an excess of manure. Later, with fair culture, it has proved itself a valuable fruit for market, if not to be carried a long distance, and when fully ripened, a good home berry, and one of the largest of strawberries.

Among the more recent berries which, from their promise the past season, warrant further trial, are President Lincoln, Miner's Great Prolific, Pioneer, Essex Beauty, Cumberland Triumph and Duncan.

## The Cup-Plant.

Among the plants conspicuous on the western prairies from midsummer onwards, are the species of *Silphium*, of which there are nearly a dozen. The name *Silphium* has no definite meaning, it being the ancient name of some plant which Linnæus gave to this American genus. One species, *Silphium laciniatum*, is widely known as the "Compass-

Fig. 2.—THE GOLDEN DEFIANCE STRAWBERRY.

plant." It has long been known to explorers and others who have travelled over the broad prairies, that the large root leaves of this plant have their

faces placed east and west; and consequently their edges stand north and south. This fact has been denied by those who have observed the plant in enclosed and crowded gardens, but it is well established that on the open prairies, the leaves so generally stand with their edges north and south as to entitle it to the name long ago given it, of "Compass-plant." This and another species (*S. terebinthinaceum*) exude from their stems a resinous matter in the form of drops or tears, on which account

THE CUP PLANT.—(*Silphium perfoliatum.*)

they are termed "Rosin-weeds," and are, in some parts of the country, favorite horse remedies. The species above referred to are rather coarse for ordinary gardens, unless grown as curiosities, but there is one known as the Cup-plant, *S. perfoliatum*, which is sufficiently ornamental to deserve a place in gardens of sufficient size to allow of such large subjects. The Cup-plant throws up numerous stems from a perennial root; these, according to the soil, are from four to six, or even eight feet high. The stems are square, and bear ample opposite leaves, six inches to a foot long. These leaves are curiously united by their lower portions, so that each pair forms a sort of cup which quite surrounds the stem, each joint of which appears to spring from the cavity thus formed. The engraving, much reduced, from the upper part of a stem, shows this peculiar growth of the leaves. The plant is worth growing for this curious leaf structure alone, but it produces a great abundance of flowers which make it ornamental as well as interesting. The heads of flowers are much like those of a small Sun-flower, with numerous bright yellow rays surrounding a greenish yellow disk. It keeps in flower a long time, and is one of those stately, robust looking plants which may be effectively introduced into large gardens where it can have sufficient room to develop itself without encroaching upon other plants. In a small border, of course such vigorous subjects are quite out of place.

## Our Native Lilies.

We have, east of the Mississippi, four admitted species of native lilies. Three of which are common throughout the Northern States, and one southern species. These four are naturally divided into pairs, as in two of them, the parts of the flower which commonly pass for petals, are narrowed at the base to form a sort of stem, or *claw*, as it is termed botanically. These two are the "Wild Orange-Red Lily," (*Lilium Philadelphicum*), and the "Southern Red Lily," (*L. Catesbæi*). In these the stems are about two feet high, the flowers are erect, and bell-shaped; the first named has two or three on the stem, reddish-orange with dark purple spots on the inside; the other has a single flower to the stem, which is almost scarlet, and spotted with purple on a yellow ground. The other two have nodding flowers, with the parts not narrowed below, but are turned back, like those of the "Turk's-Cap" lilies of the gardens. Of these two, the "Canada," or "Wild Yellow Lily," (*L. Canadense*) is from two to five feet high, with a few orange colored flowers, with brown spots. The "American Turk's-Cap Lily," (*L. superbum*), grows three to seven feet high, with a pyramidal cluster of many—sometimes 20 to 40—flowers, bright orange-red in color, with many dark purple spots on the inside. Besides these, there has been described the "Carolina Lily," (*L. Carolinianum*,) with few and yellow flowers, but otherwise so like the last named, that it is usually regarded as a variety of it. Of these wild lilies, the first two are most generally found in sandy ground, while the other two grow in rich moist meadows, and low grounds. With the exception of the southern species, they are not at all rare, and some, if not all, may be found in most localities. To those who are fond of cultivating flowers, these offer many attractions; the bulbs may be transplanted with great ease, and in the rich soil of the garden, where they have not been forced from necessity to struggle against a crowd of other plants, they present a luxuriant growth, and an abundance of flowers, only rarely met with in their wild state. Not only do they vary considerably in the number of flowers and their size, but they present a marked variety in their color. In the wild state, our lilies puzzle botanists; we have stated as to the last one, named (*L. Carolinianum*), that it was regarded as distinct from the "Turk's-Cap," (*L. superbum*), by some, while it is, by our best authorities, placed as a variety of that. But a greater difficulty presents itself; plants will occur so evenly between the "Canada Lily" and the "Turk's-Cap," that it is difficult to say to which they belong, and some doubt if the two are really distinct, and if the main difference is not often all one of luxuriance of growth. When it comes to the question of color, the wild plants show the greatest variety. The "Wild Turk's-Cap," is usually described as having orange-red flowers; we have seen them when scarlet, and a deep scarlet would best describe the color. We recently saw in the grounds of Woolson & Co., Passaic N. J., a row of this lily, *Lilium superbum*, containing some hundreds in full bloom. These were from bulbs dug up in the country round about there, and the variety they presented, was most interesting. Some plants were not over two feet high, while others were nearly six feet, and in the number of flowers to the stem, the size of the individual flowers, and especially in their color, and markings, there was sufficient variety to induce some botanists to make many species. While we had seen here and there a few bulbs of our native lilies under cultivation, we never before saw them by the hundred, and we were more strongly than before impressed with the great beauty of these natives of our meadows and bogs, and the inducements they offer to lovers of flowers, to bring them into cultivation. By careful selection, marked varieties

THE COLUMBIAN LILY.—(*Lilium Columbianum*).

may be obtained, and those who would experiment with seedlings, and especially in hybridizing, they present a field in which the amateur may reap rich results. Upon the western side of the continent there are species of Lilies resembling ours, and besides these, several, such as the Washington, and Parry's Lilies, quite unlike our Eastern kinds, and more resembling the exotic species. Among those closely related to our Eastern Lilies is the Columbian Lily (*L. Columbianum*). This, which has been thought to be merely a form of our Wild Yellow Lily (*L. Canadense*), is now regarded by Mr. Sereno Watson, who has given special study to the genus, to be a good species. It is the common Lily of the northern portions of the Sierra Nevada, and is, as yet, but sparingly in cultivation. The engraving here given is from a specimen supplied by the firm above named. It grows from one to two feet high, and has whorls of very distant leaves. Its flowers, from two to five in number, are very small, being only about an inch and a half across; with the parts turned strongly backwards; orange yellow, freely spotted with purple. This is an exceedingly neat and interesting dwarf Lily, which we hope may soon be in general cultivation.

**The Money Value of Orchids.**—The report of a sale by auction, of a private collection of Orchids, in London, a few weeks ago, gives one an idea of the money value of fine specimens of these charming plants. The whole collection brought

about $11,000. The highest price for a single specimen was about $190, while great numbers were sold at prices ranging all the way from $40 to $60 each.

## The American Grape Mildew.

In order to become more thoroughly acquainted with the prevalence of Grape Mildew, the writer, in the summer of 1877, sent a list of questions to the leading grape growers in the country. From the replies, many of which were very full, it was evident that in the *mildew*, the grape growers have a serious and destructive pest. The literature of the subject shows that it is no new thing, and that grape mildew has received considerable attention

Fig. 1.—A GRAPE LEAF WITH MILDEW.

from horticultural writers. [Just as we are preparing this paper, there comes to hand a quantity of dwarfed, discolored, and worthless grapes, made so by this destructive mildew fungus.] All who have given any attention to the matter, are aware that the mildew is a minute fungus, known to botanists as *Peronospora viticola*. This fungus is best observed on the leaves, where it makes yellowish-brown patches on the upper side, while beneath there is a white forest of the spores. The smooth-leaved varieties show the mildew to the best advantage, as it is not obscured by the dense growth of hairs of the "woolly" varieties. Figure 1 is a view of the under side of a grape leaf, reduced in size, showing the affected portions darkened, *a*, *b*. If a thin cross-section of the leaf is made through one of these mildewed spots, and placed under a compound microscope, we have what is shown in figure 2. (For convenience, the under side of the section is placed uppermost in the engraving.) The threads of the fungus, *c*, run in all directions between the cells of the leaf, and after a short time reach the breathing-pores, or *stomata*, *b*. (An account of these pores is given on page 306, last month.) The threads of the fungus pass out, and reach the air, through these breathing pores of the leaf — often half a dozen from a single "pore"—and branch so as to appear like a miniature tree, *a*. Upon the tips of these branches, the spores, *d*, *d*, are rapidly formed. It is the vast multitude of these little branched tops, with their clear transparent spores, which gives the white, frosty appearance of the infected spots, to the naked eye. Figure 3 shows a highly magnified view of a small portion of a thread of the fungus, *c*, after it has pushed its way between the cells of the leaf, in which is also seen some of the numerous little projections, *i*, *i*, which penetrate the cell-wall and absorb the nourishment. From their function they have received the common name of "suckers." One of the ultimate extremities of a "limb" is shown in figure 4, with its peculiar form of branching, *d*, together with one of the spores, *g*. These are *non-sexual* spores, (see article in July, page 208), and have a peculiar method of germination. The contents of the spore, a few hours after it is ripe, divide into from six to ten oval bodies, *g*, which soon rupture the spore-wall and escape, each provided with two little hair-like processes, *h*, by means of which it can rapidly move about. Here, then, we have each spore producing a number of moving bodies, which, after finding a suitable locality, germinate and reproduce the mildew in a new place, and it may be on another plant.

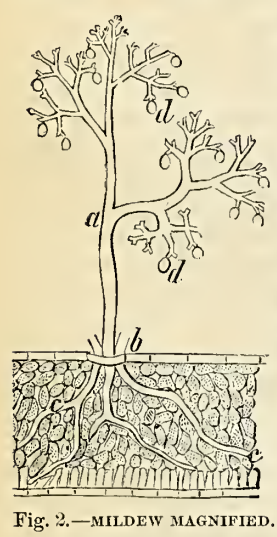



Fig. 2.—MILDEW MAGNIFIED.

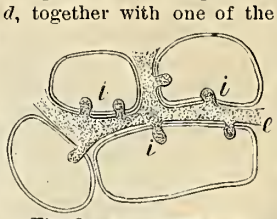
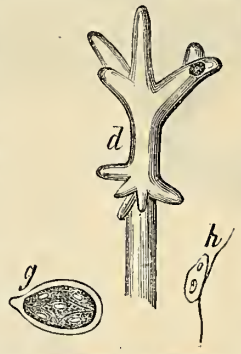



Fig. 3.—FILAMENT AND "SUCKERS."

Besides these non-sexual spores, just described, there is another kind always formed *within* the tissue of the grape plant, and is sexual, as it is necessary that the contents of two different threads should mingle in order that one of these spores may arise. This process is shown in figure 5, the small filament, *a*, representing the male, the contents of which passes into the female cell, *b*, which afterwards forms a sexual spore, *c*. These spores are large, and covered with a thick cell-wall, slow in their formation in comparison with the exceedingly rapid development of the aerial, non-sexual spores. They are only produced late in the season, and serve the special purpose of carrying the mildew over the winter. They germinate in the same way as the small summer spores, by producing a number of motile bodies—which, when finding their way to the grape plant, repeat the trouble of the previous year.




4.—BRANCH AND SPORES.

This Mildew makes its appearance any time from the first of June to the last of September, depending very largely upon the state of the weather—a succession of warm rainy days being the most favorable for its development. We have often been asked what varieties are most susceptible; but the question cannot at present be answered. The strong, thick-leaved varieties, like the Concord, appear to be less affected, while some tender thin-leaved varieties are almost ruined. Although this mildew is peculiar to America, it flourishes upon foreign vines, when brought to this country, "even more luxuriantly than on American species." The mildew of Europe, which, at times, has proved so disastrous in the vineyards of Madeira, is a fungus of a very different kind from this, and demands separate consideration, as we have it also.

Flowers of Sulphur, used with a bellows, (fig. 6), *early in the season*, when "an ounce of prevention is worth a pound of cure," followed by repeated dusting as circumstances of weather, etc., decide, is *the* remedy for the grape mildew. "Early and over-bearing are prolific sources of mildew," therefore judicious thinning will do much to keep it off.

## The Uses of the Flower-Pot.

BY PETER HENDERSON, JERSEY CITY HIGHTS, N. J.

The past 20 years has shown great changes in the method of growing plants in this country for commercial purposes, and it may be said that the raising of some plants has been completely revolutionized. One example of this is seen in the present method of striking strawberry plants in pots. Although pot-layering of strawberries was begun about 20 years ago, by the late Mr. Knox, of Pittsburgh, Pa., yet it was only done to more certainly increase some of the newer sorts, and not for the purpose of producing plants for general cultivation. Now this pot-layering has become so popular, that an amateur cultivator rarely plants for his own use any other than pot-grown plants. Hundreds of thousands of pot-grown strawberry plants are sold in New York City during the months of August and September to those having gardens in the suburbs. I am so satisfied of the advantages of this plan, that if I were intending to grow strawberries for market, no matter to what extent, I would adopt this method. During the past five years we have never failed to get a *full* crop of fruit from pot-grown plants, if set out before August 15th, and have had a half crop even if set out as late as the middle of September. But it is not alone in strawberries that the flower-pot presents great advantages to the propagator. Grape-vine cuttings put in the propagating greenhouse, or hot-bed, on April 1st, will be ready to pot in a 3-inch pot in May, and these, if shifted into 4-inch

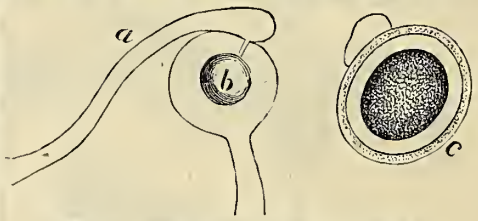



Fig. 5.—FORMATION OF SEXUAL SPORE.

pots in June, will make plants 4 feet high by fall, having their roots a dense mass of fibres. With vines thus grown, both tops and roots are thoroughly ripened, and, when set out either in fall or spring, such plants never fail to start, and make twice the growth that a vine of the same age would have done, if it had been merely lifted from the nursery row without being pot-grown. Moreover, when grown in pots, vines can be transplanted, if desired, during the hottest and driest days of July or August, with perfect safety. The same is true of various other vines, such as all kinds of Honeysuckles, Clematis, Wistarias, and other hardy climbing plants. So with the hardy-herbaceous plants, such as Chrysanthemums, Phloxes, and many others, most of which are now grown in flower-pots, and can be safely transported and set out at any season of the year. Perhaps no plant has been so greatly benefited by the method of cultivation in pots as the Rose. Formerly roses were cultivated in nursery rows, in the open ground, like ordinary shrubs. When wanted to fill orders, roses were lifted from the open ground and packed like other nursery stock. The business of raising roses is almost entirely changed, and those engaged in supplying the demand grow them in pots. It is true that the pot-plant is not so large as that sold from the nursery row, but being pot-grown it has a mass of fibrous roots, and though the plant may not be more than 6 inches high, when put out in May, it will make a larger and better plant by September than the nursery plant that has not been

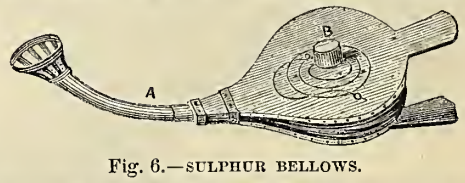



Fig. 6.—SULPHUR BELLOWS.

pot-grown, though that may have been perhaps six times larger when planted. Moreover, in the pot-grown plants, if in healthy condition, there will not be over one per cent that will fail to grow, while the plants from nursery rows often fail largely, even under the best conditions. A rose plant makes comparatively few fibrous roots; it has therefore weaker recuperative powers than most shrubs, and for that reason the thousands who still buy such plants are doomed in many cases to disappointment. Pot-growing is particularly valuable with all plants that make long bare roots, such as the Chinese Wistarias, Magnolias, etc. Many know from unpleasant experience that plants of the Chinese Wistaria 6 or 8 feet long, taken from the open ground, will rarely make much growth the first season after planting, often forming shoots only 6 inches long, and even in the second season the

growth is often small. A plant, if pot-grown, though less than a foot high at the start, will often make a growth of 10 feet the first season. I have advocated this method of pot culture, for all such plants, to florists and nurserymen for the past 20 years, and we are yearly adding to the number of species of plants that we grow in this manner.

## A New Raspberry—The Chinese.

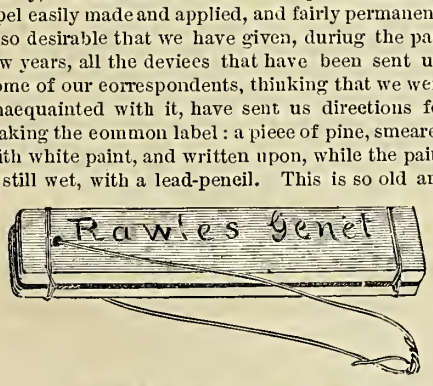
BY PROF. C. S. SARGENT, DIRECTOR OF THE ARNOLD ARBORETUM OF HARVARD UNIVERSITY.

We have cultivated for the last two or three years a *Rubus*, native of Manchuria, Northern China and Japan (*Rubus crataegifolius*, Bunge), with the supposition that it was a Blackberry, and of little horticultural importance or value, except as an ornamental plant of neat habit, remarkable for its rich autumnal coloring. This year the plants have fruited, and it proves to be a true Raspberry. The fruit is large, firm, clustered, nearly semi-spherical, of a brilliant orange-scarlet color, and with a flavor which suggests the common Black Raspberry or Thimbleberry. The largest fruit I have noticed is ⅝ of an inch in diameter, and rather longer than broad. Probably as a table fruit the Chinese Raspberry is hardly worth cultivating, but it is suggested that by using it to cross with some of the delicate garden varieties, a hybrid might be obtained hardier than anything now in cultivation. Such a hybrid might be expected to produce large and very high-colored, handsome fruit, of great substance, and therefore valuable for market purposes. The neat habit, great hardiness, large, brilliant fruit, and especially the rich claret color which its foliage assumes in autumn, render the Chinese Raspberry one of the most desirable of the many shrubs recently introduced from its native countries. [We may expect to hear more from this interesting Raspberry in due time, as we learn that a few *experienced* hybridizers will be supplied with young plants from the Arboretum, to give them an opportunity to test its horticultural value. ED.]

## Labels for Fruit Trees.

BY CHARLES DOWNING.

[A Tree-label seems like a small affair, yet to the fruit-grower who appreciates the value of accuracy, it is a matter of no little importance, and a label easily made and applied, and fairly permanent, is so desirable that we have given, during the past few years, all the devices that have been sent us. Some of our correspondents, thinking that we were unacquainted with it, have sent us directions for making the common label: a piece of pine, smeared with white paint, and written upon, while the paint is still wet, with a lead-pencil. This is so old and

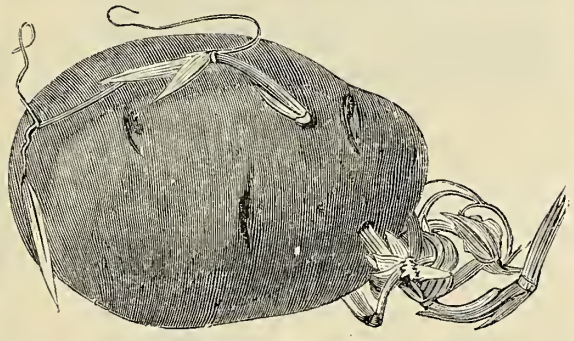



WOODSON'S FRUIT-TREE LABEL.

so generally known, that we regard it as *the* label, in use by every one, and the standard with which all claimed improvements must be measured. Yet there are different methods of making this, the simplest of all labels, concerning which our correspondent, Mr. Charles Downing, writes: ED.] "I have used the wooden label, (spoken of by 'F.,' Clarion Co., Pa., mentioned in the July No., page 253) for many years, and although not perfect, has proved as valuable as any of the many kinds tried, considering the small amount of labor required to prepare them. The label should have a good coat of white paint all over it; and when thoroughly dried, paint one side of the label again, and immediately write the name firmly, with a lead-pencil. When well done, this will last for many years. For a more permanent label, I am indebted to Isaac T. Woodson, Mumfordsville, Ky.; one which I have not seen published. After the labels are prepared and once painted—as above, take two of the same size, paint one side of each, and while fresh, write the same name on each; when dry, put the two labels together—one name inside and the other outside; put a wire over each end of the two labels securely, and suspend the two as one label. When the outside label is obliterated, take off the wires, and you will have the name on the inside as plain as when written. I find annealed copper-wire, No. 20, the best for labels. [To illustrate the label here described, Mr. Downing kindly sends one ready to put upon the tree, which allows us to make the matter plainer by the engraving given below. ED.]

## Perforated Potatoes.

Nearly every season, specimens are sent us, showing potatoes, carrots, and other garden vegetables perforated, as it is alleged, by "roots" of some grass. The engraving, of a potato, recently received, will show the general appearance in such cases. The "root" charged with the mischief is not a root at all, but an under-ground stem, called by botanists root-stock, or *rhizome*. Several grasses have these under-ground stems, which grow in a



A PERFORATED POTATO.

horizontal direction a short distance below the surface. They are not, like the above-ground stems, which grow upright, furnished with green leaves, but at their joints, just where leaves start on the above-ground stems, there are large, chaffy scales, in place of leaves, as seen in the engraving. Like an above-ground stem, this one which grows below the surface is made up of joints, which are gradually shorter towards the end, and at the very end there is a terminal bud or growing point. This terminal bud is very sharp in the grasses, and as it is pushed forward by the growth of the stem, it can as easily pierce a potato, as it can force its way through the earth. Two common grasses have root-stocks sufficiently strong to penetrate roots and tubers in this manner; the Mexican Drop-Seed (*Muhlenbergia Mexicana*) and the Couch, or Quack-Grass (*Triticum repens*). The first named of these, though called "Mexican," is very common everywhere, in the older States at least, and is often mistaken for the Couch, or Quack-Grass, on account of a similar habit of growth, being abundantly provided with long under-ground stems. It is a much more slender plant in all respects, and has its flowers in an open panicle, while Quack-Grass has them in a close head like wheat. In the case of the potato here shown, we judge from the size—nothing above-ground being sent, that the mischief is due to Quack-Grass rather than to the other.

**Red Paint in Horticulture.**—Red paint may be made very useful in a small way, especially in making conspicuous such small articles as are liable to be lost. The handles of trowels, weeding forks, pruning knives, and all such small implements, if painted bright red may be very readily found when dropped in the grass or otherwise mislaid. But flower tubs, hanging baskets, and many other things, which should be as inconspicuous as possible, are now very often painted the most positive and staring red, which makes them appear obtrusive and to force themselves upon the attention, while the plants they hold, and to which they should be secondary, are rendered less noticeable.

# THE HOUSEHOLD.

☞ *For other Household Items see "Basket" pages.*

## Home Topics.

BY FAITH ROCHESTER.

### Suggestions about Carpet-Sweeping.

Sweeping is a good exercise if you can avoid raising a dust. But if you are in need of vigorous exercise of that kind, get a hoe and betake yourself to the potato-patch or corn-field. Sweep carpets gently. Even a rag carpet should be treated with consideration. A severe digging with a stiff broom wears the warp and scrapes out the lint of the rags quite needlessly. Not long ago I heard a woman say that a very stiff broom was needed for sweeping a Brussels carpet. I thought to myself "a stiff broom will never sweep *my* Brussels carpets" (good reason why!), as I imagined the tearing out of the soft tufting of the carpet by the coarse, sharp broom splints. A carpet-sweeper is the best thing for this purpose. It does the work easily and well, and saves dust. A brush of hair and dust-pan are good to use for the nicest carpets, but their use is too laborious for recommendation to a busy housekeeper. If a common broom-corn broom must be used for Brussels, it should be fine, soft, light, and clean. To sweep up threads, ravelings, and other fine litter, many persons wet the broom in clean tepid water, shaking out the water before sweeping with it, just keeping the broom moist enough to wipe up the fine dust and threads, rinsing in clear water and shaking it frequently as the work progresses. Brussels carpets are not suitable for rooms where sewing and baby-culture are going forward. In providing carpets for any room, reason would dictate that they be such as may easily be kept clean; not so dark as to show every dust and thread, nor so light as to be very easily soiled—something which will either let the dust sift through or retain it on the surface, rather than *in* the carpet itself, when to be used in rooms where dust is made.

### Care of Carpets.

To make sweeping an easy task, get carpets of a kind that are easily swept, then save them from unnecessary litter by care about scattering fine chips or crumbs of wood, cloth, paper, or food. Eating should be done in rooms easily cleaned, with carpets of oil-cloth, or similar material, or with bare floors, or with a linen crumb-cloth spread upon the carpet underneath the table. Children should not be allowed to run about the house with pieces of food in their hands. If their food is not all taken at the table, the child should be obliged to sit still somewhere, catching its crumbs upon a napkin, bib, or apron, instead of dropping them upon the floor. Children who learn "to save mamma trouble," and so get at least a smile of gratitude from her for their thoughtfulness, are far happier than those who are not trained to care, but are allowed to make themselves a general nuisance among orderly people. If they wish to whittle, or to cut paper or dolly things, in your best rooms, you need not necessarily refuse them. Spread a large cloth or newspaper down to catch the chips or clippings, and see that it is safely emptied so soon as the child's work is done. Grown up people are sometimes very annoying, because of their lack of this kind of early training. They pull flowers to pieces in your parlors, whittle on your smoothly-shaven lawn, scatter fruit peelings and cigar stumps about the yard, scribble on the covers of your magazines and margins of newspapers, and scratch matches on the walls of the house, or leave disagreeable marks of some kind in every possible place.

### The Choice of a Broom.

After the carpet and the care, next comes the broom—soft and limber, and not too large and heavy. I always send for light brooms now, having found how much more strength it uses up to wield a large and heavy broom. Besides, except for scrubbing, I want a broom to use gently. A short, quick stroke takes all the dust along before it, and does not send it flying all over the shelves, pictures, etc., so that much that you have stirred up and set flying about settles back over the carpet

again. Keep the dust low, sweeping just hard enough to move it quickly along before the broom. If you have a very dusty room to sweep, cover the furniture, or that which is upholstered, and the shelves and tables with books or small articles upon them, and afterwards shake the covers out of doors. Then, when you do the dusting, if the carefully swept carpet shows a fine coating of dust settled back upon it, you can if you choose wipe it over with a large clean cloth; shaking it out of doors.

**Bare Floors—Bless them!**

that is, when they are clean, and I don't have to do the scrubbing myself. I do like clean bare floors in summer, especially when I am a little girl with bare feet—well, they should be swept in the direction of the grain of the wood. Of course this takes all of the dust out more thoroughly, as all of the little cracks in the wood, as well as the long cracks between the boards, run that way. When the boards have shrunk apart it is often a tedious matter to keep the cracks clean, but this ought to be done—and "not leave the other undone,"—that is, the child training and the reading, and the posies in the window, not to mention the cooking, and washing, and ironing, and sewing, etc. Learn to sweep with a broom held straight, so that it will not wear one-sided. Never set it down on the brush end, but either hang it by a string or stand it brush end up where it can not be knocked down.

**Mending the Clothes-Boiler Again.**

The last time, the leak was right in the soldering on the outside of the boiler, where it had been mended along the outer lower edge next the stove. I suspect that this came from setting the boiler upon the too hot stove, right side up, to dry before putting it away. A boiler ought to be washed and wiped carefully, and then exposed to the hot sun, or turned *bottom* upwards across one corner of the stove in which there is only a very moderate fire, for a few minutes until perfectly dry. This drying will prevent rusting, and most leaks come from rust. Turn it across a corner so that the handles may not be melted off if you should forget to remove it from the stove at the proper time, or if the fire should be hotter than is proper. But if you do get a leak in the soldering, so that a fine stream spurts out from the full boiler, of course you can't stand there all day and hold your finger on the spot, especially after the water boils. Well, then, you can do as I did. I drove a very small tack—the very smallest kind—gently into the hole until it filled and stopped it entirely. One day when there was a leak along the same seam, though in a different place, I mended it with plaster of Paris. A very little, mixed with just enough water to thoroughly wet it, and quickly applied, sets firmly into the crack as it dries, and answers the desired purpose, at least, for a time. It should, of course, be done when the boiler is empty and dry.

## Easels as Ornaments.

Within a few years the painter's easel has become an important aid in ornamenting rooms. It is not especially decorative of itself, but it is largely employed for the display of ornamental objects. We find it in use, of the full size, for the support of a choice painting, or select engraving, in a favorable light; of less than half size, to stand upon a table and hold small pictures or some choice illustrated work, down to miniature easels, a few inches high, to place upon the mantel-piece, a bracket, or elsewhere, to hold photographs, choice bits of china, or other article of ornament, that may be best shown in the position allowed by the easel. In making an easel, whatever its size, there is the widest choice of material. A large easel may be of pine, to be painted and decorated in a variety of styles, or it may be of costly woods, and these admit of a variety of ornamentation in the way of carving, and they are often susceptible of high polish. With small easels, where strength is not needed, a variety of materials may come into service; pine stems, reeds, rattans, rough twigs of the elder, and various other shrubs, and we have seen quite small ones made from twisted wires. Whatever the material, or the size, the structure of the easel is essentially the same. The engraving, fig. 1, shows a method of making that will answer for both large and small sizes. Six strips or pieces are needed; two serve for outside uprights, two for cross-pieces above and below; a center upright strip between the two cross-pieces, to add to the firmness, and a strip as long as the two outside pieces to form a third leg; this, in a large easel, is firmly attached to the upper cross-piece, by means of a hinge. Of course, when much weight is to be borne, the parts should be firmly put together with screws, or the pieces, where they cross one another, may be halved together and glued, and the joints strengthened by means of wooden pins put in with glue. In a large easel, holes are made at about six inches apart in the side pieces; these are to hold large-headed pins, which may be of wood or metal, upon which the picture rests, and this may be held at any desired hight by placing the pins higher or lower in the holes. In small easels, this contrivance for raising and lowering the picture, or other object, is not needed, as the lower cross-piece is at a convenient hight, and in this are placed the pins as shown in the engraving. The pieces for a small rustic easel may be split, each being a half cylinder, and put together with tacks, or what is preferable in such work, fine copper wire, which can be managed to appear very neat, and be at the same time strong. The leg-piece, in a small easel, is best attached by wire. Among the recent novelties, that the mania for "decoration" has made popular, are "picnic plates." These are very thin plates, turned from wood; they are very cheap, answer all the purposes of plates at a picnic, and do not break. The cheaper kinds are made of basswood, or some light colored wood, while others, of beautifully marked Bird's-eye Maple, and more choice woods can be had for a little more. It is a pleasant custom with those ladies who are handy at decorating with the brush, to take the plates of the gentlemen, and embellish them with some design commemorative of the occasion, which of course the owner of the plate will duly treasure. We have seen such plates made into remembrances of an autumnal picnic, by exquisitely painted representations of autumn leaves. Plates thus embellished show to excellent advantage supported upon a small easel on the mantel-piece. Figure 2 shows how one of these plates was converted into a "trophy" for a smoker. Whether it was to remind the recipient that he made himself annoying at the picnic, or to commend him for abstaining from his favorite pipe on that occasion, we can not say. At all events, his picnic plate was converted into a really decorative trophy. Two eagle-clawed clay pipes, with their stems crossed, are attached to the plate by means of very fine wire, passing through, and twisted on the back. A neat ribbon bow appears to tie the pipes together. Between the bowls of the pipes is a group of leaves, and above a cluster of moss roses, all delicately painted.—This will serve as a hint to those who would convert such plates into "trophies"—those skilled in painting will find them to furnish an excellent material on which to sketch in colors.

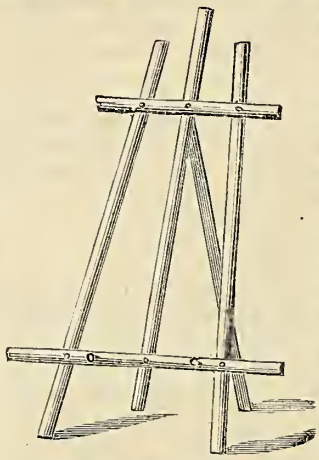


Fig. 1.—EASEL FRAME.

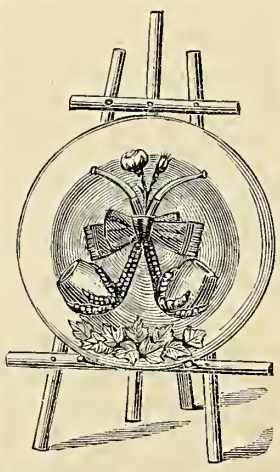
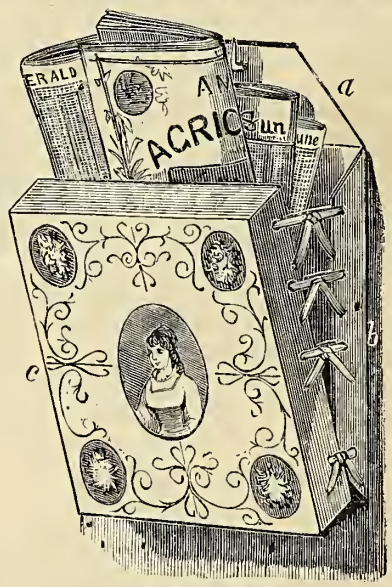


Fig. 2.—EASEL WITH PLATE.

## A Cheap and Neat Paper Rack.

The accompanying engraving shows a paper rack which is easily made from such a box as the dry-goods stores are very willing to part with. A paste-board box, about one foot square and six inches deep, will be a convenient size. One end of the box proper is cut down along the corner, where it is joined to the sides, and is turned down in line with the bottom. This piece, when the square corners are cut off, in any way that suits the taste, forms the top of the rack, *a*, in the middle of the upper part of which one or more holes are made by which the rack is hung to the wall. The other three sides, *b*, (the other two hid from view in the engraving) are cut down to about two inches, this depending somewhat upon the size of the box. The cover, *c*, is then fastened to the newly fashioned bottom by a number of ribbons, as shown upon one side in the engraving. Here again the taste may be exercised as regards the size and color




A CHEAP PAPER RACK.

of the ribbon, and the number of ties. If preferred, a piece of thin leather, or even strong cloth, can be used to keep the two parts together. The cover and sides may be decorated with small pictures, or in any manner that may be desired. These general directions will allow one to make a useful paper rack, or "catch-all," at a very slight outlay.

## The Buffalo Moth.

*First; As to Its Name.*—The ordinary Clothes Moth is the caterpillar of a true moth—or "miller" as it is popularly called. Butterflies and Moths make up the order of *Lepidoptera*, or scaly-winged insects. The wings of these are covered with minute scales easily removed by a touch, which are beautiful objects under the microscope. Butterflies fly in the day, and have their antennæ or feelers straight, stiff, and with a knob upon the end, while moths fly mostly at night, and have their antennæ or feelers taper-to a point. The term *moth* has, to the entomologist, a definite meaning. The destructive caterpillar, which has received the name of "Buffalo Moth," is not the larva of a true moth, but of a *beetle*, an insect belonging to an entirely different order, the *Coleoptera*, which, for the most part, have a pair of delicate wings quite enclosed, when at rest, by a pair of generally very hard and horny or leathery wing-cases. The Lady-birds, the Rose-bug, the June-bug, etc., are common examples of this class. We do not wonder that an eminent entomologist wrote us that, "when you speak of the Beetle of the Buffalo Moth, you puzzle us old-fashioned bug-ologists." But the name "Buffalo Moth" is,

among house-keepers, so thoroughly attached to the creature that causes so much mischief, that, however incorrect it may be entomologically, the attempt to give it any other name, such as "Carpet Beetle," will be fruitless. In the popular mind, the Clothes Moth is the caterpillar that does the mischief, and not the perfect insect, as that is generally called the "Moth Miller," indicating that it is something that belongs to the moth. So when we mentioned "the beetle of the Buffalo Moth," we did so in a popular sense, meaning the perfect insect of the caterpillar so destructive to carpets, etc.

*Second; What Is the Buffalo Moth?*—Like the Clothes Moth, this insect is mischievous only in its larval or grub state. The magnified "moth" is shown in figure 1; its length (shown by a line at the side), when full-grown, is about three-sixteenths of an inch, but, including the hairs, considerably longer. It is clothed with brownish hairs, those on the sides being in tufts, and at the tail end they form a sort of pencil. It is probably this shagginess, with nearly black hairs, that gave it the name of "Buffalo Moth." Upon its underside are six small legs, which allow of rapid movement. The grub, when full grown, enters into the pupa state, and remains dormant for some time; in a few weeks the skin splits, and the perfect insect, or beetle, comes forth. The beetle is shown in figure 2, considerably magnified, its real length being indicated by a line at one side. It is about one-eighth of an inch long, and is marked with black, scarlet, and white. The edges of the wing-covers, where they meet, are bordered with scarlet, making a central line of that color down the back; there are other red markings and three white spots on the outer border of the wing-covers, the rest being black. The perfect beetles appear at various times during the fall, winter, and spring, and, in the spring at least, are found on spiræas and some other common garden flowers.

Fig. 1.—BUFFALO MOTH.

*Its scientific name is Anthrenus scrophularia.* It is a native of Europe, and is supposed to have been imported in foreign carpets—an additional argument for the encouragement of home manufactures. It is a close relative of *Anthrenus muscorum* (or *A. varius*), a well-known and dreaded pest in museums.

*Its Introduction.*—The Buffalo Moth appears to have first attracted attention in the year 1874—various newspaper accounts appearing before the insect came into the hands of entomologists; it seems to have been noticed in the Western part of the State of New York, and in Wisconsin about the same time. In 1876, it was reported as especially abundant in the city of Schenectady, and lately Poughkeepsie and other cities along the Hudson have been destructively visited by it. Lately its spread has been most rapid, as we hear of it from nearly every Atlantic State, to those of the far West. The cabinets of Entomologists have contained, for several years, *Anthrenus lepidus*, from beyond the Rocky Mountains; this, we are informed by that careful entomologist, Mr. A. S. Fuller, is now regarded as a mere variety, differing somewhat in color from the "Buffalo" beetle; it is common in California, Oregon, etc., and is supposed to have been introduced by the Spaniards.

*How It Works.*—Its destructiveness has been especially manifested upon carpets, hence it has been called "Carpet Beetle" and "Carpet-bug." It works under the edges of the carpets, making large holes near their margins. Where there are cracks between the floor-boards, it will sometimes follow these, as they offer hiding places, and working along them cut off whole breadths of the carpet as if it had been done with shears. But it does not restrict itself to carpets; woollen articles of clothing, whether packed away or hanging up, are attacked by it, and it seems to fancy feathers as well as wool. The specimen from which figure 1 was drawn was captured by one of the officers of the Orange Judd Company upon a child's hat, in the trimming of which some feathers were used. The hat had been put away in a box, and when taken out this summer, all the feathers were completely destroyed. According to some accounts, this insect has taken possession of houses that have been closed for a year, or more, during the absence of the family, and the havoc they have caused has been most disastrous.

Fig. 2. PERFECT INSECT OF BUFFALO MOTH.

*The Remedies.*—We have several times given the most effective—laying a wet folded sheet along the edges of the carpet, and passing hot irons over it, to liberate an abundance of steam, which, penetrating the carpet and the cracks below, will kill the moth. Where the insects can not be readily picked from articles of clothing, these may be put into a tight box, or a close vessel, such as a wash-boiler, and benzine poured over them; the vapor of the benzine will in a few hours destroy all insect life. Before carpets are laid, the cracks in the floor, and

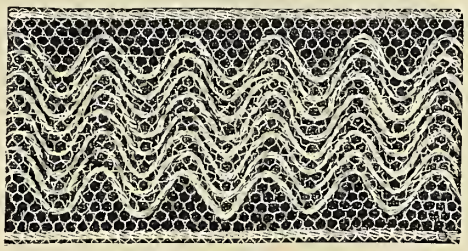


Fig. 1.—WAVE INSERTION.

especially between the base-board and the floor, which are favorite retreats, should be closed, if small by putty, or if wide by plaster of Paris; we have no doubt that hard-soap would be of service for this purpose. Wherever the beetles are found, and, according to Doct. Lintner, they often gather upon the windows, whether found here, or upon spiræas and other garden flowers, they should be destroyed in spite of their beauty. The beetle, figure 2, is from one of Prof. Riley's figures, and we are indebted to notes kindly furnished by Mr. A. S. Fuller, and an article by Doct. J. A. Lintner in the Report of the N. Y. State Museum of Natural History for some facts in the history of this insect.

## Easily Made Insertions.

The engravings here given, are from specimens of Insertion sent us by Mrs. "E. M. S.," Passaic, N. J. We have selected four kinds from among the many patterns, and show them of actual size. *Insertions* being the accepted name for an ornamental fabric, put between the portions of a garment, the use of them will be understood. The groundwork of these Insertions is cotton mosquito lace, which may be obtained at the dry goods stores of

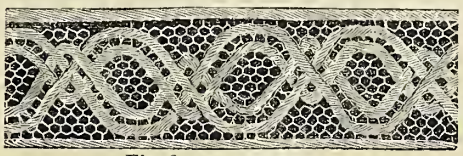


Fig. 2.—A LOOP PLAN.

any size or mesh to suit the taste. The size shown in the engravings, is perhaps the most convenient to work upon. The thread used in these, is the double and single "A" brand. Figure 1 is a graceful waved design, made by passing the needle

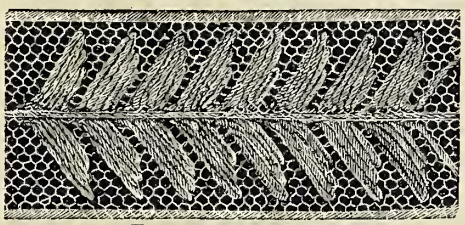


Fig. 3.—A VINE FORM.

—which should be a large one—through the meshes of the lace, in a curved line. Figures 2 and 4, are made with a larger thread. In figure 3, a diagonal loop is formed, making a vine-like figure, with a central stem. Much more elaborate designs are made—in fact, the limit to this work depends only upon the patience and ingenuity of the designer.

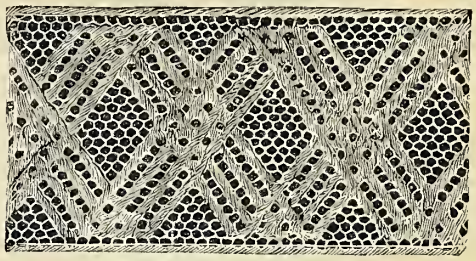


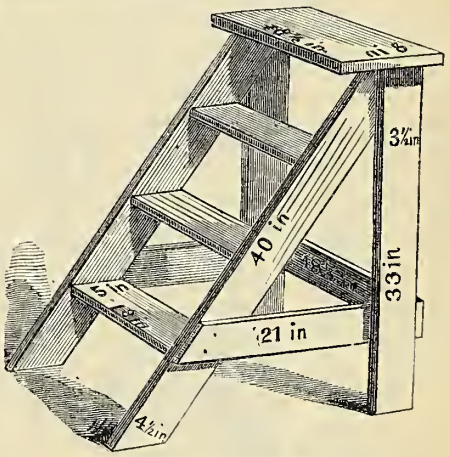
Fig. 4.—DIAGONAL DESIGN.

Those here given, are of the more simple kinds, easily and rapidly made, look neat, and are durable.

## Some Recipes from Michigan.

The following recipes come from a house-keeping friend in Michigan, and have the merit of having been thoroughly tested:

SNOW PUDDING.—Soak half a box of Gelatine in half a cup of cold Water half an hour. Then pour on half a pint of boiling Water; add 2 cups Sugar and the juice of 1 Lemon; when the mixture is cold, add the whites of 3 Eggs, and beat all together 1 hour. Then make a custard of 1 pint Milk, the yolks of 3 Eggs, 2½ tablespoons of Sugar; set on ice until cold; when wanted for the table, flavor the custard with Lemon, and pour over the molded pudding.—I beat one hour, or until it is done, which is shown by its piling up like foam. This pudding is a very beautiful dish, and one that I make when I wish something particularly nice.




A HANDY STEP LADDER.

WHITE SPONGE CAKE.—1½ cup Sugar (pulverized), 1½ cup Flour, 1 tablespoonful Baking Powder, 1 do. of Corn Starch. Sift the ingredients together, and stir lightly into the thoroughly beaten whites of 10 Eggs. Flavor to taste. Bake in a deep tin, with a paper on the top.

COFFEE CAKE.—1 cup cold Coffee, ⅔ cup Butter, 1 cup Sugar, 1 cup Molasses, 1 teaspoonful Soda dissolved in the coffee, 1 Egg, 1 cup Raisins, 1 teaspoonful Cinnamon, 1 do. Nutmeg. Flour enough to make a batter so stiff that the fruit will not settle. Bake in a slow oven.

WHITE CITRON CAKE.—2 cups Sugar, ½ cup Butter, whites of 4 Eggs, 1 cup cold Water, 3 cups sifted Flour, 2 teaspoonfuls of Baking Powder, 1½ teacupful of sliced Citron. These are to be mixed as follows: work the butter and sugar to a cream, add the water; then 2 cups of the flour, and half the egg, which has been beaten to a froth. Stir this well some time, then add the rest of the flour, into which has been mixed the baking powder, and lastly the remainder of the beaten egg. When all has been beaten well, add the citron and beat again.

**Another Step Ladder.**—"E. M. F.," Lansing, Mich., sends us a drawing of a step-ladder, or "steps" as it is usually called. The engraving speaks for itself, as the length, breadth, and thickness of all the parts are given.

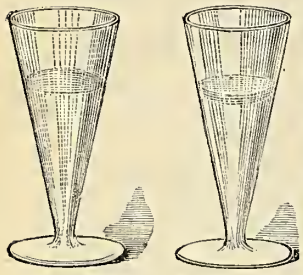
# BOYS & GIRLS' COLUMNS.

## The Doctor's Talks.

In our last "Talk" about matter and its properties I had something to say about *Capillary Attraction*, and I hope you have kept in mind what was there said, as I wish to have some more talk about this same

CAPILLARY ATTRACTION.

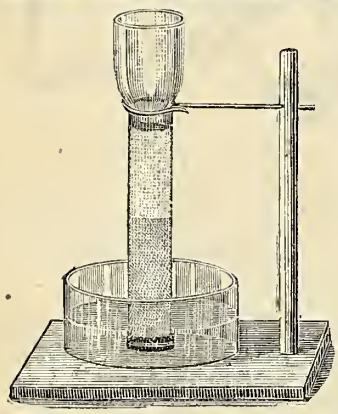
There is so much to be said about *matter* and the *forces*, that you may think I am getting along at a rather slow rate. But I do not think it well to go too fast, and it is better to learn one thing well, than to have a mere smattering knowledge of many things. Though I told you last month about Capillary Attraction, I wish now to show you some of its applications, and how, without knowing—or thinking of it, we daily make use of it. You will recollect that this force received its name from *capillus*, a hair, because it was first noticed in very small and hair-like tubes; but it was shown that it was exercised by any surfaces that were wetted by liquids, as seen by the experiment with two pieces of window glass. There is one point that I should have stated more distinctly last month—it is this: for Capillary Attraction to take place, the liquid and the solid should be of a kind that one will adhere to the other. You must look to last month's talk for the



1.—MERCURY. 2.—WATER.

DIFFERENCE BETWEEN COHESION AND ADHESION.

Briefly—*cohesion* takes place between particles of the same kind, and *adhesion*, between those of a different kind. If you were to dip a piece of glass into mercury (quicksilver) it would come out without any of the metal adhering to it; if you dip the same piece of glass into water, it will come out wet; that is the adhesion of the water to the glass was sufficient to overcome the cohesion of the particles of water one to another. In the mercury the particles *cohere* together, stronger than they *adhere* to the glass. We say that mercury does not *wet* glass, while water does; *wetting* is due to the adhesion of a solid to a liquid. If you had two narrow glasses, and were to pour mercury into one, and water into the other, and carefully observe the surfaces, you would see that the mercury, having little or no adhesion to the glass, would appear convex as in figure 1, while the surface of the water would appear concave as in figure 2,



3. SOIL EXPERIMENT WITH CAPILLARY ATTRACTION.

there being an adhesion between it and the glass. You can not expect Capillary Attraction to take place unless

THE SOLID CAN BE WETTED BY THE LIQUID.

The fibres of a piece of cloth present numerous surfaces close to one another, and if you put the end of a towel, for example, in water, the liquid will rise up through the texture of the towel. Should you carelessly leave your towel so that one end is in the water of the wash basin, and the other hangs down over the edge, the basin would after a time be emptied, the water rising through the towel and finally dripping upon the floor.

THE USE OF BLOTTING PAPER

to take up an ink spot, is an illustration of the utility of Capillary Attraction. You know that blotting paper will take up the ink and that letter paper will not. You know that you can write upon letter paper, but upon the paper used for newspapers you can not usually write on account of the spreading of the ink. Why is this? Blotting paper and most printing paper are *porous*, *i. e.*, there are open spaces between the fibres of which they are made, and the surfaces of these fibres attract the ink; take it up by Capillary Attraction. The writing papers and the finer kinds of printing papers are *sized*, that is, have the spaces between the fibres filled up with glue, and there is no chance for the ink to enter and spread.

A LAMP WICK

was mentioned last month as a daily—or rather nightly illustration of this force—Capillary Attraction, the spaces between the cotton fibres of the wick, acting in the same manner as minute tubes, and bringing the oil up to the surface. The same thing takes place in the candle, when the heat of the flame keeps a little of the tallow, or other material, melted, so that it can rise in the wick and be burned. If you have a piece of rattan (which is the slender stem of a kind of Palm growing in tropical countries) and cut a piece between the joints five or six inches long, and put one end of it in a phial containing kerosene, after a while the kerosene will rise through the rattan, and may be burned there as if the stick were a wick.

THE STEM OF THE RATTAN,

though hard and polished on the outside, is very porous within, and contains numerous minute tubes and spaces through which the oil can rise by Capillary Attraction. There is one thing to be noticed in all the illustrations of Capillary Attraction; however high it may be raised,

THE LIQUID NEVER OVERFLOWS.

For example, if you have a glass tube so fine that water will rise in it for six inches, if you make the tube four inches long, the water will rise to the top, and stop; the same would occur if the tube were an inch long, the attraction carries the liquid to the top, but there is no overflow. It is fortunate that this is so, or we should be obliged to take the wicks from our lamps every day! But if when a capillary tube is full, we remove the liquid from the top, more rises to take its place. In the lamp wick, we remove the oil from the top by burning it, and so long as any remains in the lamp, it rises to take the place of that burned away. But I have left the most important of the many uses of Capillary Attraction to the last.

THE CAPILLARY ATTRACTION OF THE SOIL

is of the greatest importance not only to the farmer, but to all who live upon the earth. Did not the soil possess this property, vegetation could not live, and the earth would be a desert. You can make an experiment showing the action of this force in the soil, if you have any piece of glass tube, such as a broken lamp chimney; tie a piece of muslin or any thin fabric over the lower end, and then fill the tube to near the top with sand, or sandy soil, (any other soil will answer, but these operate more rapidly,) that has been thoroughly dried by being spread in the sun. Place the lower end of the chimney in a dish of water, and hold it in an upright position, as shown at figure 3, or by any other contrivance that will keep it from falling over. The water will be seen to gradually rise in the tube, and its progress may be seen by the darker color of the wetted soil, as seen in the engraving. The water rises here by Capillary Attraction; the particles of the soil, present surfaces which act like minute tubes, or like the plates of glass shown last month. Just what happens in this tube, happens over your whole farm—in fact over the whole earth. As the sun and the winds dry the surface soil, and the growing plants evaporate great quantities of moisture from the surface of their leaves,

WATER RISES FROM BELOW,

where it has accumulated from the rains. Were it not for this, so soon as the soil within a short distance of the surface had dried out, the plants would wither and die. But as it is, as the upper soil becomes dry, the water rises from below, and it is only in a very long dronth that the supply is exhausted and the plants suffer. Thunder storms and torrents of rain are noisy, and we notice them when they bring needed water to the soil, but here is a still, small force, constantly at work, bringing life to our crops from far below the surface. We do not see it, seldom think of it, yet keeps on, like many other blessings, whether we are thankful for it or not. You will learn that, as the most noisy people are not those who do the most, so the grand and noisy forces are not the only ones that we should admire. This quiet rising of the water in the soil by Capillary Attraction, when we think what it does for us, becomes one of the grand phenomena.

## The Doctor's Correspondence.

WHY SOME LETTERS ARE NOT ANSWERED.

It sometimes happens that my young friends forget that a number of weeks must pass between the time at which they write and that at which an answer can reach them through the paper. This must happen in a monthly paper. Some answers would be all too late to be of use, and I do not give them. For example, a boy wrote me that he had found the cocoon of an insect and asked what he should do to make it hatch. From the description I knew that the insect would come from the cocoon long before he could get my reply, and I did not give it.

THERE IS ANOTHER REASON

why letters are not answered. I have just torn up a dozen or more that had no signature—that is, no name to the letter. I have stated many times that it is very improper to write a letter and not sign it with your own name. It is well to learn this while you are young, and *never* be so impolite as to address a letter to another without putting your name to it.... "H. D. B.," Ingham Co., Michigan, would like to know about

THE GAME OF "AUNT SALLY."

It is not much of a game, but a sort of rude sport. In England, at races, fairs, and at other gatherings, various outside amusements are provided by those who make it a business, just as around our fairs there will be Flying Horses, Fandangos, "Test your Lungs" affairs, "Weigh you for a Cent" chaps and others. "Aunt Sally" is very common there, and I have now and then seen it in this country. The "Aunt" is mostly all head; a roughly carved wooden head is fastened at the top of an iron rod, the other end is stuck in the ground, to make the head about three feet high. The face is rudely painted, usually black, and where the mouth should be, a hole is bored in which a common clay pipe may be inserted. This is all that is really needed to make an Auntie, but she is often furnished with a kind of skirt or frock, and a cap made in an extravagant style. Figure 1 shows the anatomy of the old lady, and figure 2 gives her dressed for company. Each of the players has three sticks, or clubs, about a foot and a half long; he stands at a line marked at 10 or 12 paces from the figure, and throws

"AUNT SALLY" BEGUN AND COMPLETE.

the sticks in such a manner as to break the pipe if possible. The players pay a small sum for their three chances, or shots, but whether they get anything if they hit the pipe, I don't know. Indeed I do not know the rules of the game, not having had the pleasure of seeing Aunt Sally except at times when no one was playing...."How to capture it?" is a question "G. C." asks

ABOUT A HORNET'S NEST.

I never tried but one, and will tell him how I managed that. My horse one day, some years ago, was hitched at a post under a tree. "Jock" was not noted for his activity, but upon this occasion had enough of life to make up for several years of laziness. He was being stung by hornets, and it was no little trouble to get him out of their reach. Upon search, there was found in the tree a hornet's nest, larger than a "stove-pipe hat," that had not before been noticed. The Hornets must be disposed of, or there would be daily trouble for Jock. Brimstone (sulphur) was melted, a rag made into a roll, tied to keep it in shape. This was dipped into the melted brimstone, and when cool, there was a brimstone-match, in size between a lead-pencil, and the little finger, and three inches or so long; this was fastened, by means of a fine wire, to a stick long enough to reach the nest, and we were ready. When night came, and all was quiet, the end of the match was lighted, and presented at the Hornets' front door. They had their *match*, for I doubt if a single one of the hornets in that particular nest ever stung after that; the cure was complete.

## Our Puzzle-Box.

DOUBLE ACROSTIC.

My initials spell the name of a territory; my finals give the name of a city in the same.

1. A garment.
2. A water animal.
3. A man's name.
4. Frequently.
5. An actress.
6. Encircling.
7. A goddess.
8. Peculiar.

DENVER, C. T.

NUMERICAL ENIGMAS.

1. I am composed of 25 letters:
My 2, 1, 23, 15, 12, 6, is a symbolical name for Samaria.
My 5, 12, 15, 18, 13, 19, is a Jewish measure.
My 11, 7, 2, 17, 21, 13, is used in making bread.
My 16, 11, 10, 9, 4, 3, is a mountain in Palestine.
My 22, 10, 14, 8, 24, 13, was a Judge of Israel.
My 25, 2, 3, 20, 12, 13, was miraculously destroyed for his sins.
My whole is a Scriptural Command. ISOLA.

2. I am composed of 26 letters:
My 6, 9, 13, 18,—the cubical base of a column.
My 19, 21, 8,—a flock of pheasants.
My 22, 5, 10, 3,—in Persian mythology, an imaginary fairy,
My 1, 11, 3, 12,—an ancient law term.
My 26, 16, 5, 15, 20,—to withdraw.
My 7, 23, 24, 14,—name of a timid quadruped, also a constellation.
My 17, 3, 2,—a Hebrew measure of liquids.
My 25, 10, 3,—a prefix.
My whole is a motto. SPHINX.

3. I am composed of 13 letters:
My 8, 11, 3, 1, is a metal.
My 9, 10, 11, 5, 13, is an article of furniture.
My 7, 6, 12, 13, is a number.
My 9, 4, 2, is a title.
My whole is a celebrated Eastern traveller. E. J. K.

CROSS-WORD.

My first is in slender but not in thin,
My next is in metal but not in tin,
My third is in whole but not in part,
My fourth is in picture but not in art,
My fifth is in stocking but not in shoe,
My sixth is in purple but not in blue,
My seventh is in kitchen but not in room,
My eighth is in cloth but not in broom,
My ninth is in dish but not in spoon,
My tenth is in planet but not in moon,
My eleventh is in many but not in throng,
My whole is a power that's mighty and strong.
ALBERT.

PI.

Wons si cagenodel pavoru, chiwh dulwo veah morfed arin; tub hotgurh het locscnds fo het ira, sha eben rofnez ni sit scented, tiuo scaryinlet froms.

ANSWERS TO PUZZLES IN THE JULY NUMBER.

ABBREVIATIONS.—1. Jewel—ewe. 2. Larch—arc. 3. Pa-ha—ash. 4. Snipe—nip. 5. Steam—tea.

SQUARE WORDS.

| | |
|---|---|
| 1. EDNA | 2. CLAM |
| DRAW | LANE |
| NAIL | ANNA |
| AWLS | MEAL |

ALPHABETICAL ARITHMETIC.—209)7651483(36609. (*Key—My clean pig.*

CONCEALED FLOWERS.—1. Peony. 2. Harebell. 3. Iris. 4. Rose. 5. Daisy.

GEOGRAPHICAL BLANKS.—1. Lookout, Flattery, Disappointment. 2. Horn, Fear, Clear, Sable, Wrath.

REVERSED WORDS.—1. Madam, Anna, Ada, Eve, Sis, Ewe. 2. Redder. 3. Asa, mum, deed. 4. Deified. 5. Level, eye.

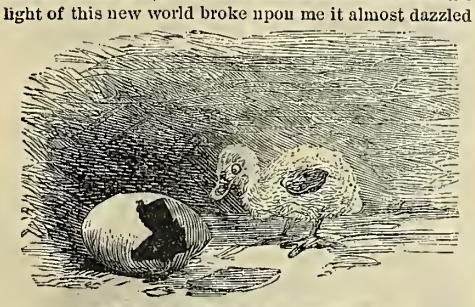
DROP-LETTER PUZZLE.—"Agriculture is the most healthful, the most useful, and most noble employment of man."

NUMERICAL ENIGMAS.—1. He preaches well, that lives well. 2. Pride of China.

CROSS WORD.—Agriculturist.

## What the Duckling Might have Thought.

"Who would have thought that I came from such a dark and unpleasant world as that! For long, long, days—they seemed like weeks—I was crowded down with my head and feet together, until I thought I should smother; and so warm too, with not a breath of air. When the light of this new world broke upon me it almost dazzled



THE OLD WORLD AND THE NEW.

my eyes, but I felt the joy which comes to those who, having lived in darkness, are suddenly set free. I stand upon the shore of a newly discovered world (water in the distance); but, unlike Columbus, I will not return to my old home to be there cast into prison and bound in chains. No power *could* put me back where once I lived. I'll fly and swim, and wade, and be free. Look at these wings of mine; they are to beat the air, and these feet, to move the waters! Farewell, old empty and lifeless world! I go to see what this new life has in store for me."—It went. And many months afterwards the people said that they had not tasted a nicer, more tender duck.

## Growth Under Difficulties—Bottled Apples.

One would not expect cherry trees to actually throw stones—though they do seem to drop them around pretty freely sometimes, when half a dozen or so boys are out of sight in their branches—but we have seen one cherry-tree that was constantly engaged in moving rocks. For several years we have seen this tree and have often wondered how the work began, and what the result will finally be. Probably a little Cherry bird—a better friend than some bad boys think, had been *stoned* out of *his* tree, and in his hurried flight and fright, dropped a fair, plump cherry in the narrow, shallow crevice of a huge rock where there was scarcely earth enough to furnish it

A BOTTLED APPLE.

a covering. But great things often grow out of adversity; the badly-treated cherry had within it a stone, and within the stone a seed, which was really a little plant, and this sent a tiny root down between the solid walls of rock—encouraged by its attempts in that direction, it sent up a little stem and hung out a small banner of a leaf, just to let its friends—if it had any—know that it had gone into business for itself; established a cherry factory *on a solid foundation*. We will not stop to tell how hard it struggled to "keep its head above water." No. We mean from dying of drouth; but pass on to say that it came through its early trials all right, and besides taking a high rank in its profession, it does a good deal outside—or rather inside work, in splitting and moving rocks. What a dozen oxen would have found too much for their strength, this stripling of a tree has accomplished. When we last passed that way, the once little crevice was a "yawning chasm" and more than a foot across, opened by the gradual growth of this tree, which still flourishes.

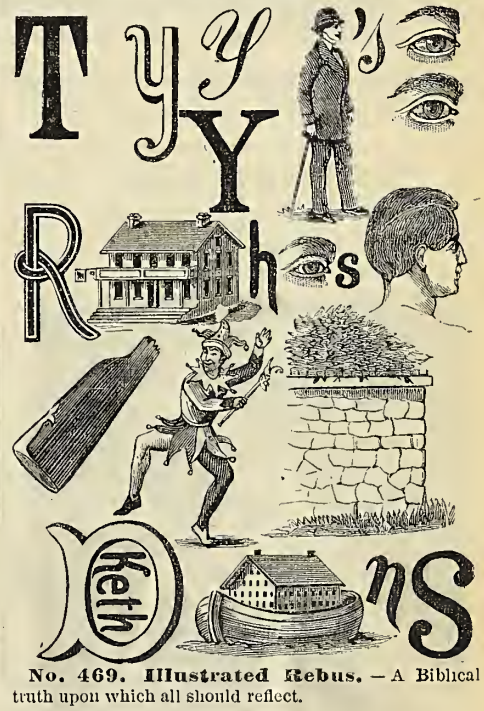
We know that apples are canned or bottled, but this is after they have been quartered and cooked. Some one, probably an inventive boy, tried to bottle a whole raw apple, and the engraving shows how he succeeded. A droll looking apple, and you will no doubt ask how it was done? One can say, like Topsy, "'spects it growed so," and that would be the truth. The apple was put into the bottle while still small enough to pass through the neck of the ink bottle. But the apple was not to be bound down and limited to the size of the glass prison into which it had been thrust. The strong wall of glass was burst open and the growing fruit has forced its way out on one side in a singular manner, while a portion has literally overrun the mouth. If the bottle had been larger there would have been simply a change of shape to correspond to the form of the bottle. These examples are interesting, and teach the power which a tender but growing substance can exert. This shows us how we can, to a certain extent, control nature, and on the other hand, how every living thing is striving to reach a definite end, and will succeed under ordinary circumstances, but when molested, as in the case of the bottle and the apple, will approach as near as possible to the regular established form. To bottle apples alive you must use larger bottles or have smaller apples, or the result will not be any more successful than the one in the engraving.

## What to Do at the Fair.

Of course you will go to *the* Fair—which means your own, town or county as it may be, and some of you may be able to visit others. In many of the fairs they very sensibly offer premiums for things that can be raised or made by boys and girls. This is a most excellent plan, but it is, of course, too late to advise you to exhibit in such cases, as the articles have to be thought of, and arranged for, long beforehand. We hope that many of our boys and girls will exhibit and take prizes, too. If you have something that you can exhibit, or intended to take to the fair, do not leave it at home because you are afraid that some one else will have something better. It is bad enough for some selfish older persons to do this. If only those exhibited who were sure of a prize, our fairs would be small affairs. Try and help your fair by showing the best you have. If you are so fortunate as to take a prize, that will be well; but it is quite as well to have tried to deserve it. You will learn why you failed, and that will be useful. If you try for a prize, do not set your heart so much upon it that you will be disappointed if you fail to get it, and be cross over it. Recollect that but one can take the premium, and if that falls to another, see why, and try to do better next time. But the chief object in going to the fair should not be to get a prize—though that is a good thing to do—but to learn something, and there is always much to be learned at a good fair. Do not run about from place to place without any object in view, for you will then be too tired to enjoy anything. It is very easy to get tired at a fair; indeed sight-seeing is a most fatiguing work. Make up your mind what kind of things you most wish to see, and see them thoroughly, and then, if you have time you can look at others. If it be implements, the poultry, the cattle, or the horses, the sewing machines, or the fancy work, take time and see what any of these have to tell you that you did not know before. At a State fair many years ago, in Ohio, we think it was, the most interesting objects we saw at the fair were two boys of about 12 and 14 years of age. We met them among the implements, and the way in which they examined these, and compared them with those they had at home, and their bright remarks as they came across something new, induced us to keep near the little fellows for a long time. Those boys are men now, but we have never been to a fair since without thinking of those boys. They made the fair very useful, and went home that night, with tired legs no doubt, but with their heads filled with useful hints, and probably had enough to think about and talk over for many a day thereafter. We call to mind these two boys as their manner of seeing the fair is one that we hope that all our youngsters will adopt. Those youngsters that hang about the catch-penny side-shows, or think that the most attractive objects are upon and around the refreshment stands, fail to make the best of *the* Fair.

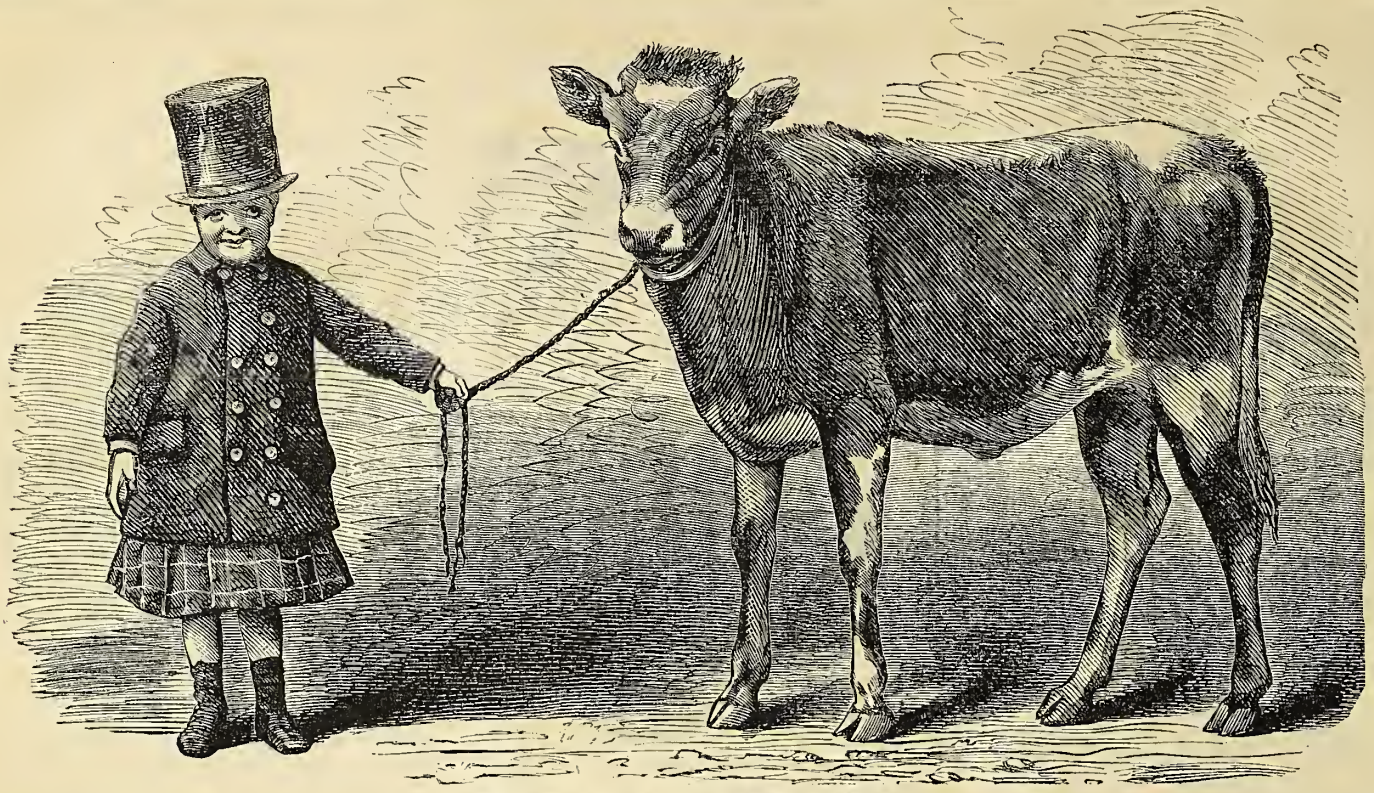
## The Boy and His Calf.

Look into the face of the "Young Herdsman" on the next page, with his fine Jersey pet by his side, and does not it say, just as plainly as if spoken, "How do you like *my* calf?" He is a fine fellow, little man; and you must




**No. 469. Illustrated Rebus.**—A Biblical truth upon which all should reflect.

have taken good care of him—or have seen that he was well cared for, which is all the same thing. Not only is the calf a fine one after its kind, but you can see that the youngster is a nice specimen after his kind. This is no fancy picture, for we happened to know both the boy and the calf. It was a great day, that, on which the portrait of the calf was taken, and the youngster, knowing that he would show in the picture, prepared for the occasion, and he insisted upon wearing his father's hat. What makes a nicer pet for a farmer boy, or farmer girl, too—for girls are very fond of pets—than a nice calf. Of course, every one of our immense family of Boys and Girls can not have a calf for a pet, but we have no doubt that a great many of them who live upon farms can have a calf to care for by merely asking, as the parents of many of you will be glad to see you take an interest in the stock of the farm. But do not ask for an animal to care



"HOW DO YOU LIKE HIM?"

for, without being sure that you can care for it. When you take an animal as your own, it is a promise that you will feed and water it, and give it all needed care. It is well, if your father thinks so too, to have a farm animal to look after, to care for, and if it is worthy, to take to the fair. Besides pets in the way of calves and colts for the larger youngsters, there are others deserving of care. We remember the first pet animal that we had was a little black kitten, which came into our possession before its eyes were open. What fun we had in feeding it! How we watched it grow! and how it did grow! until we had the largest and the blackest cat in all the neighborhood. But, like all cats, "Blackie" had his day, and when in old age he died, a little grave was dug and our pet was no more. Our boy in the picture may have tears in his bright eyes some day. His pet will soon become too big for him, and he must part with his calf. It will be a sad day for him when his calf goes away, but he looks as if he would bear it like a little man. If we were writing this for the parents, instead of the children (and we have no doubt that you will show this to father and

Fig. 1.—THE LONELY LOCUST.

mother), we should say, wherever the conditions allow, and where it can be done without inconvenience, give the youngsters some animal to care for, a calf or a colt to the older ones, a lamb, a little pig, or some chickens, to the younger. Most parents will be ready enough to do this, provided they can be sure that you will do your part, which is, to care for, feed, and water the animal as often as needed, no matter whether the weather be hot or cold, rainy or sunny. One reason why we wish you to have pet animals is, that you may *do your duty* by them. They are helpless without your aid. If you neglect them they will suffer, and that would be cruel. Recollect that the taking of a pet of any kind is an unspoken promise that you will care for it—and promises must be kept.

## Some Curious Ways of Insects.

A friend told me the other day that he had just seen an interesting sight. "There were," he said, "two peculiar bugs rolling a great ball along the sidewalk just as boys roll a large snow-ball. I found them so excited and earnest in their work—I think they could not have been at play—that I stopped to watch them. They soon came to a hard place where they got stuck, and after trying several times to start the ball, they went all around it, and then rolled it back and started off in another direction."—If my friend had examined more closely, he would have found that these beetles—"Tumble-bugs" as they are called—were not at play, rolling the ball for the fun of the thing, but the ball, made of cow-dung, contained an egg, which the parent beetles were carrying to some safe place where the egg would hatch. I have seen similar "bugs," which, after having found a dead mouse, would go and dig a hole in a favorable place and then tug and pull, and roll and push, until they had brought Mr. Mouse to his grave. A German lover of insects thought he would see what these carrion beetles (as they are called) would do, so he killed a toad and placed it on the end of a stick, the other end of which was thrust into the ground. A number of beetles found the dead toad, probably by their keen sense of smell, and gathered about, but after going around the stick several times—much as a boy with his shot-gun will continually travel around a tree in which a squirrel is hid—they held a meeting and voted (as we may imagine) to undermine the stick, which they at once did, and toad, stick and all soon fell to the ground; and the toad was in due time buried. This true story of the stick and toad reminds me of the fact that insects will climb stalks and poles for the sake of the better view that is thereby gained. If the insect is up one stalk, and a higher one near by is seen, away goes the little admirer of nature, just as children go to the top of a hill (and grown people, too) to see what is to be seen; or perhaps the little insect went up the stalk for the same reason that Paul climbed the tree when he and Virginia were lost in the woods—to find out where he was, and try and find a way to his lost home. Honey bees will go some miles from their hives for the sweets which they are very busy in gathering. This has been proved by dusting the bees with a white or colored powder, as they leave the hive, and another person has watched for them on the flowers of plants several miles away. When bees start for home they are very swift and direct in their return—much more so than some boys I have seen, even after they had been sent for; but boys have longer to live than bees. Bees are very *sharp*, and when they really try, can make an ordinary boy trot home quite lively sometimes. I can well recollect being escorted up through the wheat field one afternoon, by some very warm friends (?) just because I made questionable motions at a bumble-bee. There is no doubt that bees distinguish strangers; many instances being on record where such has been very painfully the case.

Our artist gives us two pictures of insect life as looked at through the eyes of his imagination. In the first engraving we look in upon the musical Locust as he sits in a very thoughtful mood in his own rather poorly furnished studio. He is evidently not in good spirits, and it may be that the bottle, which we are sorry to see by his side, has helped to make him sad. Probably the number of brother musicians has been so large this year, and the pie-nies so few, that there has been but little demand for him and his rasping violin. His eye is growing dim, and before many weeks, provided the Turkeys don't get him, he must lay down his fiddle and his bow.

In the second picture we look into another professor's study, but one of a very different kind. This is the home of a keen-eyed scientist—Mr. Cricket—whose eyes are aided in their profound searchings by glasses and microscopes. From the specimen upon which his attention is fixed, and the books which he has gathered about him, we may conclude that he is trying to more thoroughly understand *man*. It would seem that he has shut himself up and is giving his whole time to the study of this little creature—one of the "worms," according to the title of one of his wonderful books. He evidently

Fig. 2.—THE CRITICAL CRICKET.

views man with a "cricket's eye," and therefore we are not called upon to "pass his imperfections by." Mr. Cricket is doubtless very studious, and we may look for stranger revelations in the Development of Man-worm or Worm-man when his book is published; but I am inclined to think it would be better for him to make a visit upon the neighboring ants, look into their methods of doing things, and do *likewise*. Well, these pictures are but the fancies of an artist; he pictures insects as he imagines they might be, but after all, when we come to watch insects and their ways, while we may not find them imitating human actions, we shall see that they do things which are in their way sufficiently interesting to make us admire and wonder at them. UNCLE HAL.

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**Two Harrows in One,**
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Combined with a vertical or straight tooth.
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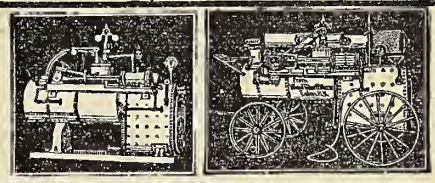

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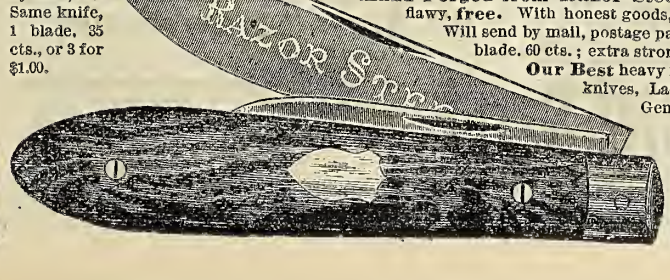


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## PLANTS OF THE CHOICEST SMALL FRUITS.
**Strawberries, Raspberries, Blackberries, Gooseberries, Grapes, Currants.**
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The two great market berries, in large supply—fine plants.
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New and old, including **Sharpless** and **Pres. Lincoln,** pot-grown and in layers.
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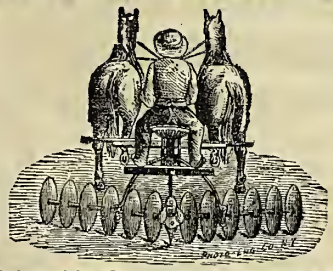

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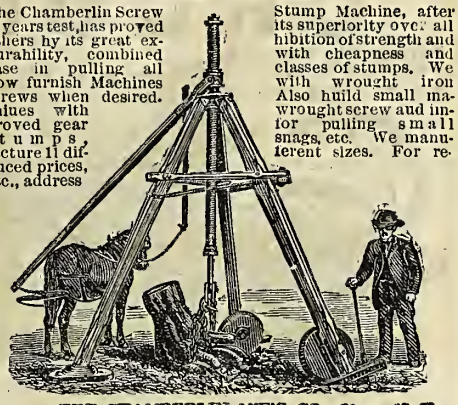

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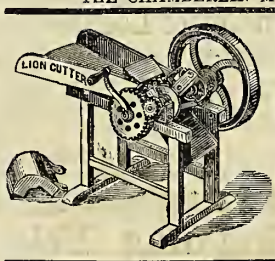


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both cylinder and lever, and
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**The Acknowledged Monarch of all**
**Grain and Grass-Cutting Machinery,**
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**AWARDED THE HIGHEST HONORS**

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Whenever you hear of a CHAMPION MACHINE in your vicinity, do not fail to examine it thoroughly. Its **Lightness of Draft,** its Marvellous Movement, its Simplicity, and its Automatic Adjustment to every condition of the field, can not fail to commend it. The **CHAMPION REAPERS and MOWERS** will be on exhibition this fall at most of the County, District, and State Fairs, and Expositions throughout the United States and the British Provinces. **Manufactured by Whiteley, Fassler & Kelly, The Champion Machine Company, and Warder, Mitchell & Co., Springfield, O.; and The Toronto Reaper & Mower Company, Toronto, Canada.**

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**222 First Premiums. 15 Silver Medals.**
**Gold Medal at Md. Institute in 1878,**
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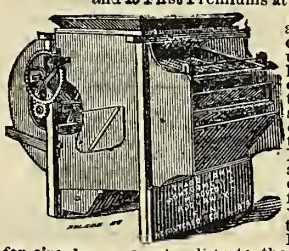

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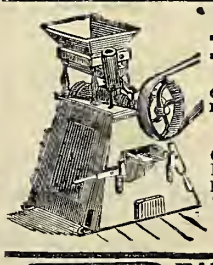

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Has superior claims over all others. The grinding parts are made of
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Is simple, durable, and cheap. Grinds all kinds of grain rapidly. Is adapted to all kinds of horse powers. *Send for Descriptive Circular.*
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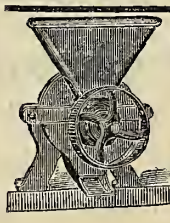

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Every farmer should have them.
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Every machine is guaranteed to give satisfaction, or no pay. Price of mills, $12; shellers, $5. Send for descriptive circulars and terms to agents.
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**No cold or sore fingers,** if used with gloves or mittens. Can be used without gloves or mittens, if desired. Will last a life time. Taken 6 Premiums. One sample 25 cts.; two for 45 cts.; 5 for $1.00. *Postage Stamps* received same as cash. *Agents Wanted.* Catalogue of Novelties free.

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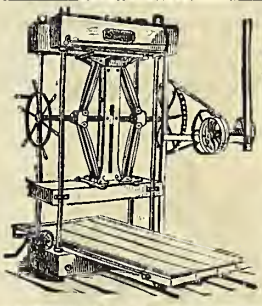
*Gents:*—Please send me 100 Huskers at once. They sell like hot cakes. Was out about 3 hours and took orders for 25 to deliver to-morrow. Please hurry; will send more orders soon. Have tried the husker; they do all you claim. Met one Farmer who had one and wants another, if he has to pay $1.00 for it. J. H. WARNER, Morristown, Pa.



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Elevator, and full line of Cider Mill Supplies. Send for Catalogue. Address
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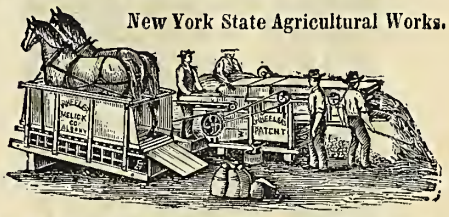
New York State Agricultural Works.



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**Railway, Chain and Lever Horse Powers, Threshers and Cleaners, Threshers and Shakers, Clover Hullers, Feed Cutters, Wheel Horse Rakes, Horse Pitchforks, Shingle Machines, Straw Preserving Rye Threshers, Portable Steam-Engines, Cider and Wine-Mills and Presses, Dog and Pony Powers, etc., etc.**

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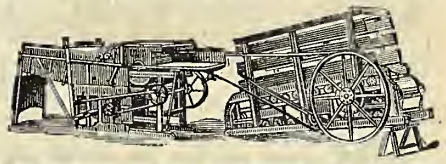

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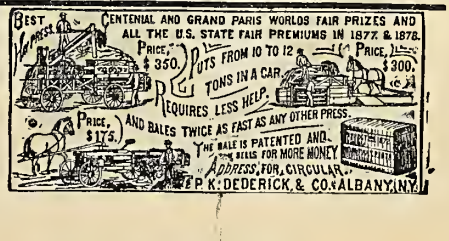
Capital $200,000.00. Net Surplus, $216,645.62. Total assets for the security of Policy-holders, January 1st, 1879, $1,150,063.99. Insures only Farm Property and Residences against fire and lightning. Takes no business risks.



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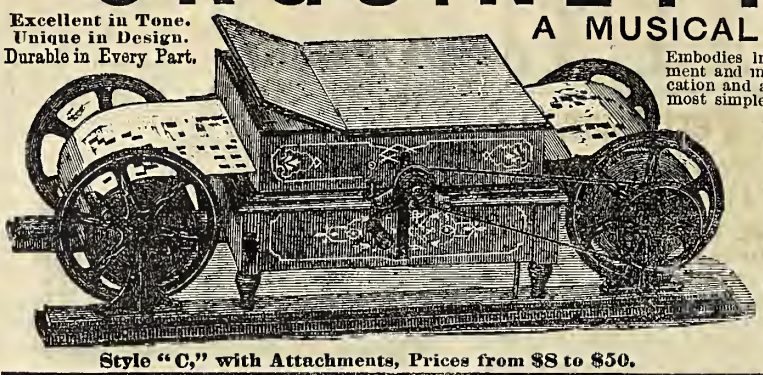

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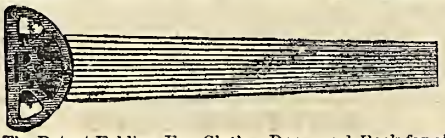

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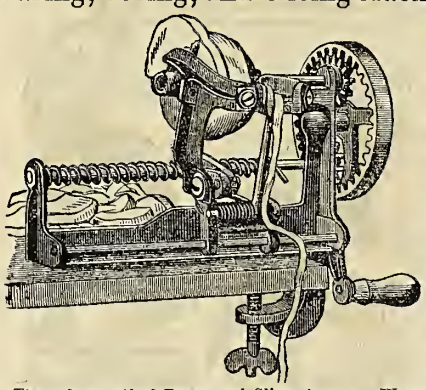

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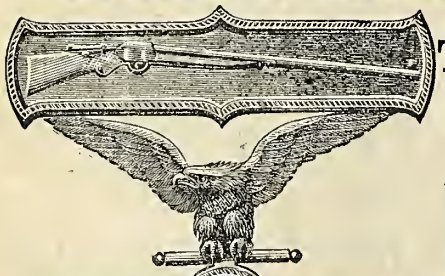

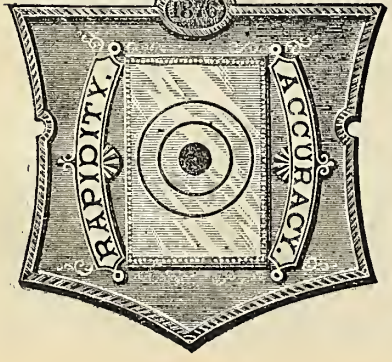


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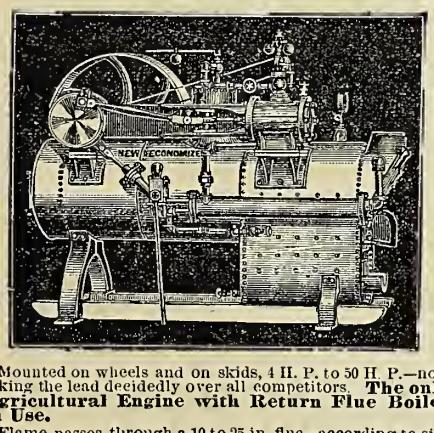


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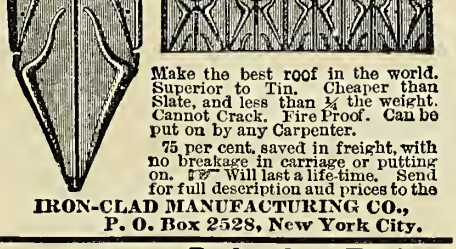

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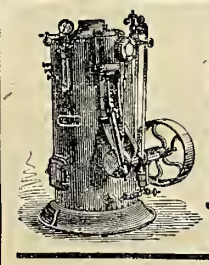

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*containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.*

Continued from Page 336.

**In justice to the majority of our subscribers, who have been readers for many years, articles and illustrations are seldom repeated, as those who desire information on a particular subject can cheaply obtain one or more of the back numbers containing what is wanted.**

**Back numbers of the "American Agriculturist," containing articles referred to in the "Basket" or elsewhere, can always be supplied and sent post-paid for 15 cts. each, or $1.50 per volume.**

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**Terms to New South Wales, New Zealand, Australia, Africa, etc.**—To several inquirers. Under the latest revision of the Postal Union Regulations the price of the *American Agriculturist,* (either English or German edition), including postage *prepaid* through, will be covered by 7 shillings sterling per annum. This applies to the above countries, and to all others embraced in the General Postal Union. The simplest mode of remittance is by Postal Money Orders, payable in London, to the order of Orange Judd Company. These can be readily cashed in N. Y. City at a slight discount, which the publishers will cheerfully pay. For Club rates, (postage included), see our second cover page, and reckon 22 cents to the shilling sterling.

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**Casting for Windmill Arms.**—"C. G.," Utah. A casting for a spider of a windmill shaft can be easily and cheaply made, as shown in the engravings. The arms are fitted into the open sockets and are bolted to the plate, and are centered as shown in the wood-cuts, by which one supports the other. For a windmill of 2 or 3 horse power, a plate 18 inches in diameter will be

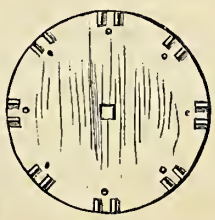

Fig. 1.

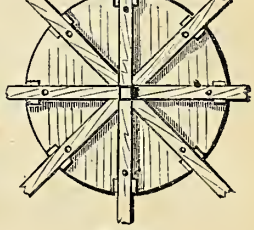

Fig. 2.

large enough. The flange for the shaft should project 3 or 4 inches to give a good bearing, one inch projection will be sufficient for those for the arms.

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**Pleuro-pneumonia.**—A Basket Item, last month, p. 320, reads; "Pleuro-pneumonia has diminished greatly in those European countries where inoculation has been introduced. We may soon see this terrible disease successfully treated by this method, as the dreaded small-pox is now in the human subject by vaccination." This item was quoted by the "New Era," Lancaster, Pa., with what comments we are not aware, but it gives the Secretary of the Board of Agriculture of Pennsylvania, Thos. J. Edge, Esq., a text for an official communication to that journal. A careful reading of the item quoted will show that it is the statement of a fact, and an indication of what may possibly happen. The Secretary is much in doubt as to the fact, and construing the rest into a recommendation of the practice of inoculation, goes on to give his reasons why "it would be a grave mistake" to attempt it in his State. Some of his views we quite agree with, but we hardly think it fair to place the *American Agriculturist* in the position of recommending indiscriminate inoculation. The Secretary himself admits that there are conditions "where it may do good," which is quite as much as we have ever advocated. We have in hand, and hope to publish before long, an article by a veterinary surgeon of large experience with the disease, which we think may convince the Hon. Secretary that in some localities, at least, the disease has been diminished by inoculation.

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**Concrete.**—An error was made last month in referring a writer, who inquired about concrete, to November, 1874. It should have been *December* of the same year—in which number the subject is fully treated, with fifteen illustrations.

**Chess.**—Not the wheat-weed of that name, but the game. A friend in S. Carolina, suggests that we devote a column to chess, in our Boys and Girls' Department. That department is intended for the amusement and instruction of young people. Chess is hardly an amusement, it is a study calling for mental effort. A friend who is one of the best chess players in the country, has often told us that a close game the evening before, has exhausted, and unfitted him for the day's work. While we should be glad if we could give room to a column to chess, it would not be in the Children's Department.

**The Rose Breasted Grosbeak.**—"A. A. R.," Hazel Green, Wis., sends us for name, the wing of this bird, which was killed while eating cherries. This pretty bird, which is easily recognized by its gay rose-colored breast, is common in some localities, and singularly rare in others. It frequents orchards and shrubbery near the house, feeds largely on berries, small fruits, and seeds, and like the one sent, often meets his death while committing depredations on the fruit trees.

**To Stain Wood Brown.**—"K. S." The most satisfactory method we have tried, is as follows. Get an ounce each of Catechu and Bichromate of Potash. Break the Catechu—which is a blackish gum-like substance—into small fragments, place it in a glass or earthenware vessel, with a piece of washing soda as large as a walnut, and pour upon it a pint of boiling water, and stir until dissolved. Put the Bichromate in a bottle with a pint of cold water, and dissolve with occasional shaking. Paint over the wood-work to be stained, first with the Catechu solution, and let it dry; it will be of a dull dirty brown. When dry, go over it with the solution of Bichromate, and it will turn to a very rich chestnut brown. By varying the strength of the solutions, the depth of color will be varied. When quite dry, apply shellac, or other varnish. Very cheap, easily applied, and satisfactory.

**Spade for the Fowls.**—It is well to turn up several square feet of the earth of the poultry-yard with a spade every now and then, as it will not only furnish the fowls with fresh meat, in the shape of worms, but give them an opportunity to exercise themselves at scratching. It also turns under the droppings, and makes the yard more healthful.

**Watering Horses.**—During warm weather, horses should have water at frequent intervals. If allowed to get very thirsty, they will, unless prevented, drink too much when they come to it. A good sized pailful of cold water is as much as a horse should take at a time. When a horse is put out at noon, it should be first watered, and then given another pailful just before going to work. Little and often is the best rule.

**Grape Mildew.**—"J. L. E.," Metuchen, N. J., sends grapes, which, upon careful examination with the microscope, are found to be affected with the *American Grape Mildew*, a full account of which is given on page 349 of the present number. It is this fungus which causes the young berries to cease growing, turn first purple and then brown, and finally black, with a white covering of mould upon the decaying parts. Sulphur applied *in time*, is the only known remedy.

**Stable and Carriage House.**—"A. C. V.," Mason Co., W. Va. Many plans for stables have been given at various times in the *American Agriculturist*; some suitable for one horse will be found in June, 1878.

**Consumption of Ice in a Dairy.**—"T. G. S.," N. Y. The quantity of ice required in a dairy depends upon the method of using it. Fifty lbs. a day will keep a 3-can (100 lbs.) Cooley Creamery at 40 degrees, and the same quantity will cool a 10-can (300 lbs.) Hardin Creamery at 45 degrees. A 4-cow dairy will be supplied by a 3-can Cooley Creamery, and a 10-cow dairy by a 10-can Hardin one.

**A School in Australia.**—We feel quite sure that there is one very good school in New South Wales, for its teacher writes: "Attached to my school is a garden, and a small vineyard of my own planting, and I am indebted to your valuable periodical for many hints and suggestions." We are confident that, where the surroundings of the school-house (a public school too,) are thus cared for, the plants within the school-house have proper care and training. Success to this far off school!

**An Invasion from the North.**—On July 28th last, there arrived in the port of New York, 15 families, numbering about 80 persons, from Iceland. The few Icelanders who have heretofore left their country have settled on the coast in high latitudes, where they could follow their pursuit as fishermen. But this colony comes with the intention of settling in Minnesota and becoming farmers. Though they arrived in our hottest weather, they clung to the heavy woollens and furs to which they had been accustomed at home, but in this, as in many other matters, they will soon adapt themselves to their new conditions, and we have no doubt that, like the Danes, of which nation they are really a part, they will become estimable and useful citizens.

**Rabbits.**—We regret to say to the many who have asked where they can procure rabbits, that we have good reason to believe that there are none for sale. In view of the numerous inquiries, we some time ago suggested, that those having these animals for sale, should let others know it. As this has met with no response, we are quite unable to answer a large number of inquiries, from those who would be purchasers of both common stock and fancy breeds.

**A Double Header.**—The "Springfield (Mass.) Union" gravely tells of what it truly calls "a remarkable freak of vegetation," which occurred at Worcester, also in Mass. It is nothing less than "a potato-vine which bears tomatoes." This is economizing matters truly—"'taters" underground and "tomatuses" above ground. Why not throw in a streak of Egg-plant? If we can have our tubers at one end and our fruit at the top, why not get in a cross of spinach, so that the foliage could at the same time be utilized as "greens"? "Unfortunately the vines were pulled up" before any one who could tell the difference between a potato-ball and a tomato saw them, and the world has lost a remarkable improvement in the way of "garden sass." It was about time for this story to "come round"; it revolves once in about three years.

**Bananas and Cocoanuts.**—During the year ending July 1st, 1879, there were imported into New York Bananas to the value of nearly $400,000, and Cocoanuts worth nearly $200,000. Cocoanuts are duty free.

**Will He Succeed?**—A young man in Cuyahoga Co., O., writes that he is 18 years of age, is going to Colorado to engage in the cattle business, will arrive there with little money, wishes our advice "as to what course to pursue," and asks: "What are my prospects of success?" We do not think that the prospects of any young man can be very brilliant who writes on a purely personal matter, asking purely personal advice, and does not sign his name. One who makes so important an omission as this, is likely to be careless in other matters; success in life depends upon attentions to details.

**Value of Soda Ash.**—"M. H. C.," Webster, Mass. Soda ash is of no use as a fertilizer by itself, but to reduce swamp muck, or soften hones, it may be made useful.

**Sowing Grass Alone.**—"F. H.," Scotch Plains, N. J. Grass seed may be sown in August. Red-top will suit wet land, and may be sown with Timothy; 20 lbs. of Red-top, and 10 lbs. of Timothy per acre may be sown. The bone-dust may be sown with the seed, and all harrowed in together with a brush harrow.

**"Apiarian."**—"C. P. F.," Kent Co., Mich. We have not the least desire to "reconcile" our use of this or any other word with Webster. We know that the dictionaries give Apiarian as an adjective, but trades and occupations are not governed by dictionaries. Not long ago, a flower-seller in England called himself "Bouquetist to her Majesty," and others have since called themselves "Bouquetists," and there is danger that the uncouth name may be adopted. If a dealer in Bees chooses to call himself a "Beevender," a "Beeologist," or a "Beeist," and people adopt the name, it will then become the business of dictionary makers to record the fact. The dictionaries give "Apiarist" as the name of one who deals in bees, but bee-dealers choose to call themselves "Apiarians." It is a good word, and if those most concerned choose to adopt it, who shall object?

**Dominique-Leghorns?**—"H." There is no such breed as Dominique-Leghorns; the Dominiques and Leghorns are distinct breeds, and if crossed, the result will be a mongrel, and not a pure-bred fowl.

**Absorption of Water by Leaves.**—Recent experiments by Boussingualt, Henslow, and others, all go to show that the foliage of plants *does* absorb moisture, and to a considerable extent.

**Poultry Houses, &c.**—"F. H. S.," Fort Plain, N. Y. The *American Agriculturist*, figured and described the Plymouth Rocks, in December, 1877. As to poultry houses, there have been but few numbers in the past six years, in which plans or suggestions may not be found.

**Celluloid Collars.**—Among the many uses to which Celluloid is put, is that of making men's collars. Celluloid is the name given to a preparation of *Cellulose*, or the material of which vegetable cells is composed. Cotton, or other pure forms of cellulose, is so changed by the action of acid, that it can be dissolved in ether, and other solvents, and thus obtained in a condition to be moulded or worked into various desirable forms. It is claimed for the Celluloid Collars, that they can not be detected from linen, are much cooler, and can be worn for an indefinite length of time. They are cleaned by simply rubbing them with a wet cloth or sponging. Some of the clerks in our office have worn them for several months, without their being noticed, and they are now as good as new. Shirt bosoms, and cuffs, and other similar articles are also made of Celluloid.

**Weeds.**—If agriculture had only to encourage the growth of desirable and useful plants, its work would be easy. But there is the more difficult task of preventing the growth of undesirable plants, to which we give the general name—weeds. The first step in destroying weeds is to know what they are, and their habits of growth. In view of this, we ask farmers and gardeners in all parts of the country to send us specimens of any weeds they find particularly troublesome, the names of which they do not know, and especially such weeds as have recently made their appearance in their localities.

**The Travis Wheat Hoe.**—"W. J. G.," Sparta, Ill. The address of Mr. Travis, the inventor of the Wheat Hoe, is Brandon, Oakland Co., Mich. Mr. Travis is an old farmer, and not a maker of machines.

**Preserving Eggs in Ice.**—"C. W. D.," Cambridge, Ill. There is no process in use, by which eggs are preserved in ice; at least we never heard of such. Eggs are preserved by the lime process, and are packed in refrigerators or cool cellars. If there is any "ice process," we should be glad to hear of it.

**Lime on Prairie Soils.**—"F. R. B.," Macon, Miss. The application of lime to old prairie soils, would probably be beneficial for a time; it makes no difference whether the lime is made from stone taken from the soil, or brought from a distance; lime, is lime—whatever its source, and its effect is to decompose vegetable matters in the soil, and it also acts upon some of the mineral matter; after these are used up, the land is in a worse condition than before, unless manure of some kind is used.

**A One-Horse Drill.**—The better yield of a crop sown by a drill is sufficient to repay the cost of an implement, frequently in one season. A drill costing $90 will be paid for in sowing 50 acres. The cost of a two-horse drill, however, prevents its use on small farms where but four or five acres are sown yearly. A one-horse drill is now made for this especial purpose, which sows either 3 or 5 rows, and may be made to sow in rows 12½ to 17 inches apart. This drill is very useful where the wheat is to be cultivated. It can be drawn easily by one horse, and will enable small farmers to enjoy all the advantages of drilling in their seed with their richer neighbors.

**The Best Churn.**—"A. E. W.," Davies Co., Ind. The best churn is usually the one with which a person is the most familiar. Of the large number (about 8,000) of different churns that have been invented, but a few have come into use, and of these, perhaps only 10 or 12 can be called good. For a one-cow dairy, the small sized dash churn, would get the most votes in a convention, and next to this would come the Blanchard. This is about the general popular estimate, as it appears to us.

**Troublesome Cows.**—"J. K.," Northampton, Pa. It is advisable to fatten, and kill off every cow, that is objectionable in any way, or that gives trouble in milking or breeding. There is no other manner of procuring cows that are free from faults, than breeding from the best, and discarding all others as quickly as possible.

**Wind Sucking.**—"M. M. P.," Augusta, Wis. Cribbing and Wind Sucking is a habit and a vice, contracted through neglect and bad education. The first time a colt or a horse is seen to attempt this practice, it should be stopped by removing everything which will encourage or allow it. It will soon be forgotten; but if it is once acquired, it will never be broken up. It is not caused by disease, but is itself the cause of sore mouth, flatulence, indigestion, and other ailments.

**Film on the Eye.**—"C. W. B.," Cumberland Co., N. J. A white or creamy yellow film covering the eye, is generally caused by a deposit of pus between the coats, which is one effect of inflammation. The inflammation is more likely to be caused by a chaff in the eye, or a blow, than by anything else. The chaff may be removed by putting a few flax seeds in the eye, these exude soft, cooling, mucilaginous matter, which eases the pain, and helps the chaff to escape. The pus will generally be absorbed by means of a counter irritation, caused by blowing a pinch of Burnt Alum into the eye, through a quill. The eye may be cooled by bathing it with a solution of one dram of Sugar of Lead, in a quart of water. Half a pound of Salts given dissolved in water, will help to remove any fever caused by the irritation.

# State, County, and Other Fairs in 1879.

## STATE FAIRS.

| | | |
|---|---|---|
| Arkansas | Little Rock | Oct. 20 |
| California | Sacramento | Sept. 8-13 |
| Colorado | Denver | Sept. 23-27 |
| Connecticut | Hartford | Oct. 14-17 |
| Delaware | Dover | Sept. 22-27 |
| Georgia | Macon | Oct. 27—Nov. 1 |
| Illinois | Springfield | Sept. 29-Oct. 4 |
| Indiana | Indianapolis | Sept. 29-Oct. 4 |
| Iowa | Des Moines | Sept. 1- 5 |
| Kentucky | Frankfort | Sept. 2- 7 |
| Maine | Portland | Sept. 16-19 |
| Michigan | Detroit | Sept. 15-19 |
| Minnesota | St. Paul | Sept. 1- 6 |
| Montana | Helena | Sept. 29-Oct. 4 |
| Nebraska | Lincoln | Sept. 8-12 |
| New Jersey | Waverley | Sept. 15-20 |
| New York | Utica | Sept. 8-12 |
| North Carolina | Raleigh | Oct. 13-18 |
| Nevada | Reno | Oct. 7-12 |
| Ohio | Columbus | Aug. 25-29 |
| Pennsylvania | Philadelphia | Sept. 8-20 |
| Rhode Island | Cranston | Sept. 9-11 |
| South Carolina | Columbia | Nov. 11-11 |
| Tennessee | Nashville | Sept. 30-Oct. 4 |
| Vermont | Montpelier | Sept. 9-11 |
| Virginia | Richmond | Oct. 23 31 |
| Wisconsin | Madison | Sept. 8-12 |

## Industrial and District Fairs.

| | | |
|---|---|---|
| Am. Institute | New York | Sept. 17-Nov. 22 |
| Am. Pomolo'l Soc'y | Rochester | Sept. 17-19 |
| Am. Bee-keepers' | Chicago | Oct. 21-23 |
| Canada, Central | Guelph | Sept. 15 21 |
| Cincinnati Ind. Ex | Cincinnati | Sept. 10-Oct. 11 |
| Illinois Fat Stock | Chicago | Nov. 10-15 |
| Inter State | Chicago | Sept. 3-Oct. 18 |
| Kansas City Ex | Kansas City, Mo. | Sept. 15-20 |
| New England | Worcester, Mass. | Sept. 2- 5 |
| Nova Scotia, Prov'l | Halifax | Sept. 29-Oct. 3 |
| Ontario, Provincial | Ottawa | Sept. 22-27 |
| St. Louis Ind. Ex. | St. Louis, Mo | Sept. 22-Oct. 5 |
| Tri-State | Toledo, O | Sept. 8-13 |
| N. W. Agr. Ass'n | Dubuque | Sept. 8-12 |
| Georgia North | Atlanta | Oct. 20 26 |
| Indiana, N. East'n | Waterloo | Oct. 6-10 |
| Indiana Northern | Ft. Wayne | Sept. 22-26 |
| Iowa Northern | Postville | Sept. 1-19 |
| Kansas Central | Junction C'y | Sept. 30-Oct. 3 |
| Kentucky, North | Florence | Aug. 26-30 |
| Kentucky South'n | Glasgow | Oct. 7-10 |
| Massachusetts H'l | Boston | Sept. 9-13 |
| Mechanics | San Francisco | Aug. 5-Sep. 5 |
| Michigan, Central | Lansing | Sept. 29-Oct. 3 |
| Michigan, Eastern | Ypsilanti | Sept. 23-26 |
| Michigan Hort'l | Detroit | Sept. 15-19 |
| Michigan, West'n | Grand Rapids | Sept. 22-27 |
| Minnesota A. & M. | Minneapolis | Sept. 1- 6 |
| Montreal Hort'l | Montreal | Sept. 16-18 |
| Nebraska, Nort'n | Fremont | Sept. 23-27 |
| Ohio Central | Mechanicsburg | Sept. 2- 5 |
| Ohio Northern | Cleveland | Sept. 1- 5 |
| Ohio Southern | Dayton | Sept. 22-26 |
| Pennsylv'a, Wes'n | Mercer | Sept. 9-11 |
| Wisconsin Nort'n | Oshkosh | Sept. 15-20 |

## County Fairs.

### MAINE.

| | | |
|---|---|---|
| Androscoggin | Lewiston | Oct. 7- 9 |
| Cumberland | Cumberland | Sept. 24-25 |
| Franklin | Strong | Sept. 24-25 |
| Knox | Thomaston | Sept. 23-25 |
| Knox, North | Union | Sept. 30-Oct. 2 |
| Ossipee Valley | Cornish | Sept. 30-Oct. 2 |
| Oxford, West | Fryeburg | Oct. 14-16 |
| Penobscot | Patten | Sept. 17-18 |
| Penobscot, West | Exeter | Sept. 30-Oct. 1 |
| Piscataquis Cent'l | Foxcroft | Oct. 1- 2 |
| Piscataquis East | Milo | Sept. 30-Oct. 1 |
| Sagadahoc | Topsham | Oct. 14-16 |
| Somerset, Central | Skowhegan | Sept. 23-25 |
| Somerset, West'n. | North Anson | Oct. 1- 2 |
| York | Berwick | Sept. 23-25 |

### NEW HAMPSHIRE.

| | | |
|---|---|---|
| Belknap | Cranston | Sept. 9 11 |
| Bradford | Newberry | Sept. 24-25 |
| Cheshire | Keene | Sept. 23-25 |
| Kearsarge | Warner | Sept. 21-25 |
| Upper Coos | Colebrook | Oct. 1- 2 |

### VERMONT.

| | | |
|---|---|---|
| Caledonian | St. Johnsbury | Sept. 16-18 |
| Franklin | Sheldon | Sept. 10-12 |
| Rutland | Rutland | Sept. 3- 5 |
| Union | Turnbridge | Sept. 30-Oct. 2 |
| Washington | Montpelier | Sept. 24-25 |

### MASSACHUSETTS.

| | | |
|---|---|---|
| Attleboro | Attleboro | Sept. 3 -Oct. 2 |
| Barnstable | Barnstable | Sept. 22-24 |
| Berkshire | Pittsfield | Sept. 30-Oct. 2 |
| Bristol | Taunton | Sept. 23-25 |
| Deerfield Valley | Charlemont | Sept. 18-19 |
| Essex | Lynn | Sept. 30-Oct. 2 |
| Franklin | Greenfield | Sept. 25-26 |
| Hampden | Springfield | Sept. 23-24 |
| Hampden, East | Palmer | Sept. 16-17 |
| Hampshire | Amherst | Sept. 18-19 |
| Highland | Middlefield | Sept. 11-12 |
| Hingham | Hingham | Sept. 23-24 |
| Hoosac Valley | North Adams | Sept. 16-17 |
| Housatonic | G't Barrington | Sept. 24-26 |
| Marshfield | Marshfield | Sept. 10-12 |
| Martha's Vney'd. W. | Tisbury | Sept. 30-Oct. 1 |
| Middlesex | Concord | Sept. 25-27 |
| Middlesex, North. | Lowell | Sept. 2-24 |
| Middlesex, South. | Framingham | Sept. 16-17 |
| Nantucket | Nantucket | Sept. 3- 4 |
| Plymouth | Bridgewater | Sept. 17-19 |
| Union | Blandford | Sept. 17-19 |
| Worcester | Worcester | Sept. 2- 5 |
| Worcester, North | Fitchburg | Sept. 23-24 |
| Worcester, N. W. | Athol | Sept. 30-Oct. 2 |
| Worcester, South. | Sturbridge | Sept. 11-12 |
| Worcester, S. E. | Milford | Sept. 23-25 |
| Worcester, West. | Barre | Sept. 25-26 |

### RHODE ISLAND.

| | | |
|---|---|---|
| Washington | West Kingston | Sept. 16-18 |

### CONNECTICUT.

| | | |
|---|---|---|
| Danbury | Danbury | Oct. 8-11 |
| Fairfield | Norwalk | Sept. 23-26 |
| Guilford | Guilford | Oct. 8 |
| Meriden | Meriden | Sept. 17-19 |
| Milford & Orange | Milford | Sept. 10-11 |
| New Haven | New Haven | Oct. 1- 3 |
| New London | Norwich | Sept. 23-25 |
| New Milford | New Milford | Sept. 30-Oct. 3 |
| Ridgefield | Ridgefield | Sept. 30-Oct. 3 |
| Tolland, East | Stafford Springs | Oct. 1- 2 |
| Torrington | Wolcottville | Oct. 14-15 |
| Union | Huntington | Sept. 17-19 |
| Union | Trumbull | Sept. 17-19 |
| Waterbury | Waterbury | Sept. 16-17 |
| Windham | Brooklyn | Sept. 23-25 |
| Woodbridge & B'y | Bethany | Sept. 24-25 |
| Woodbury, Union | Woodbury | Sept. 16-17 |
| Woodstock | So. Woodstock | Sept. 16-18 |

### NEW YORK.

| | | |
|---|---|---|
| Alleghany | Angelica | Sept. 30-Oct. 2 |
| Brockport Union | Brockport | Oct. 3- 4 |
| Broome | Whitney's Point | Sept. 23-26 |
| Carthage Union | Carthage | Sept. 3- 4 |
| Cattaraugus | East Randolph | Sept. 15-18 |
| Cayuga | Auburn | Sept. 30-Oct. 2 |
| Chautauqua | Jamestown | Sept. 9-12 |
| Chenango | Norwich | Sept. 16-18 |
| Cortland | Cortland | Sept. 2- 4 |
| Delaware | Delhi | Sept. 16-18 |
| Delaware Dairy'n | Delhi | Nov. 12-13 |
| Duchess | Washington Hol. | Sept. 23-27 |
| Essex | Westport | Sept. 16-17 |
| Franklin | Malone | Sept. 29-Oct. 1 |
| Fulton | Johnstown | Sept. 16-18 |
| Genesee | Batavia | Sept. 30-Oct. 1 |
| Gouverneur | Gouverneur | Sept. 2- 4 |
| Greene | Cairo | Sept. 17-18 |
| Hampton | Bridgehampton | Sept. 22-25 |
| Herkimer | Herkimer | Sept. 16-18 |
| Lewis | Lowville | Sept. 16-18 |
| Livingston | Geneseo | Oct. 1- 2 |
| Maine Village | Maine, (Broome) | Sept. 16-19 |
| Montgomery | Fonda | Sept. 23-25 |
| Niagara | Lockport | Sept. 25-27 |
| Oncida | Rome | Sept. 15-19 |
| Onondaga | Syracuse | Sept. 16-19 |
| Onondaga N'west. | Baldwinsville | Sept. 23-27 |
| Ontario | Canandaigua | Sept. 23-27 |
| Orange | Washingtonville | Sept. 24-26 |
| Orleans | Albion | Sept. 26-27 |
| Oswego | Mexico | Sept. 2- 5 |
| Otsego | Cooperstown | Sept. 22-24 |
| Queens | Mineola | Sept. 23-25 |
| Rockland | Spring Valley | Sept. 23-25 |
| St. Lawrence | Canton | Sept. 16-18 |
| Saratoga | Saratoga | Sept. 2- 5 |
| Schenevus Valley | Schenevus | Sept. 18-20 |
| Schoharie | Schoharie | Sept. 23-25 |
| Seneca | Seneca Falls | Sept. 30-Oct. 2 |
| Skaneatelas Farm | Skaneatles | Sept. 17-19 |
| Steuben | Bath | Oct. 1- 3 |
| Suffolk | Riverhead | Sept. 30-Oct. 2 |
| Sullivan | Monticello | Oct. 1- 2 |
| Tioga | Owego | Sept. 2- 4 |
| Tompkins | Ithaca | Sept. 16-18 |
| Washington | Sandy Hill | Sept. 10-12 |
| Wayne | Lyons | Sept. 24-26 |
| Western N. York. | Rochester | Sept. 15-19 |
| Winfield | West Winfield | Sept. 1 -18 |
| Yates | Penn Yan | Sept. 16-18 |

### NEW JERSEY.

| | | |
|---|---|---|
| Burlington | Mt. Holly | Oct. 7-10 |
| Cape May | So. Seaville | Oct. 1- 2 |
| Cumberland | Bridgeton | Sept. 17 |
| Egg Harbor City | E. H. City | Sept. 15-16 |
| Hunterdon | Flemington | Sept. 23-25 |
| Monmouth | Freehold | Sept. 9-11 |
| Somerset | Somerville | Sept. 30-Oct. 2 |
| West Jersey | Woodstown | Sept. 10-11 |

### PENNSYLVANIA.

| | | |
|---|---|---|
| Berks | Reading | Sept. 30-Oct. 2 |
| Bradford | East Towanda | Oct. 1- 3 |
| Chester | West Chester | Oct. 2- 4 |
| Clarion | Clarion | Sept. 24-26 |
| Columbia | Bloomsburg | Oct. 15 17 |
| Crawford | Conneautville | Oct. 1- 3 |
| Franklin | Chambersburg | Oct. 7-10 |
| French Creek | Cochrantown | Sept. 16-18 |
| Gratz | Gratz | Sept. 23-26 |
| Indiana | Indiana | Sept. 30-Oct. 3 |
| Lehigh | Allentown | Sept. 30-Oct. 4 |
| Lycoming | Williamsport | Sept. 24-26 |
| Mercer | Stoneboro | Sept. 30-Oct. 2 |
| Montgomery | Ambler Park | Sept. 24-26 |
| Northampton | Nazareth | Oct. 7-10 |
| Northumberland | Sunbury | Sept. 30-Oct. 4 |
| Oxford | Oxford | Sept. 24-26 |
| Rich Hill | Jacksonville | Sept. 25-26 |
| Ringtown | Ringtown | Sept. 16-20 |
| Somerset | Somerset | Sept. 24-27 |
| Susquehanna | Montrose | Sept. 17-18 |
| Troy | Troy | Sept. 23-25 |
| Union | Burgettstown | Sept. 30-Oct. 2 |
| Warren | Sugar Grove | Sept. 16-19 |
| Washington | Washington | Oct. 1- 4 |
| York | York | Oct. 7-10 |

### OHIO.

| | | |
|---|---|---|
| Allen | Lima | Sept. 30-Oct. 3 |
| Ashtabula | Jeffersou | Sept. 23-26 |
| Auglaize | Wapakoneta | Oct. 7-10 |
| Belmont | St. Clairsville | Sept. 17-19 |
| Blanchester | Blanchester | Sept. 9-13 |
| Brown | Georgetown | Sept. 2- 5 |
| Butler | Hamilton | Oct. 6-10 |
| Carroll | Carrollton | Oct. 7- 9 |
| Clarke | Springfield | Aug. 19-22 |
| Clermont | Boston | Sept. 2- 5 |
| Clinton | Wilmington | Sept. 2- 5 |
| Clyde | Clyde | Oct. 7-10 |
| Columbiana | New-Lisbon | Sept. 30-Oct. 3 |
| Crawford | Bucyrus | Sept. 30-Oct. 3 |
| Darke | Greenville | Sept. 16-19 |
| Defiance | Defiance | Sept. 29-Oct. 3 |
| Delaware | Delaware | Sept. 24-26 |
| Erie | Sandusky | Sept. 23-26 |
| Fairfield | Lancaster | Oct. 15-18 |
| Fulton | Wauseon | Sept. 3- 5 |
| Gallia | Gallipolis | Sept. 3- 5 |
| Geauga | Burton | Sept. 23-25 |
| Greene | Xenia | Aug. 13 15 |
| Greenfield | Greenfield | Aug. 12 15 |
| Guern. Co. F. & M. | Washington | Oct. 1- 3 |
| Hancock | Findlay | Oct. 2- 4 |
| Hardin | Kenton | Oct. 1- 4 |
| Harrison | Cadiz | Sept 1- 4 |
| Highland | Hillsboro | Aug. 26-29 |
| Hocking | Logan | Oct. 9-11 |
| Holmes | Millersburg | Sept. 23-26 |
| Huron | Norwalk | Sept. 30-Oct. 3 |
| Jackson | Jackson C. H. | Sept. 25-26 |
| Jamestown | Jamestown | Aug. 27-29 |
| Jefferson | Smithfield | Sept. 24-26 |
| Knox | Mt. Vernon | Oct. 7-10 |
| Lake | Painesville | Sept. 16-18 |
| Licking | Newark | Sept. 30 Oct. 3 |
| Logan | Bellefontaine | Sept 30-Oct. 3 |
| Lorain | Elyria | Sept. 16-18 |
| Mahoning | Canfield | Oct. 7- 9 |
| Marion | Marion | Sept. 30-Oct. 3 |
| Medina | Medina | Sept. 16-18 |
| Meigs | Rock Spring | Sept. 10-12 |
| Mercer | Celina | Sept. 24-26 |
| Miami | Troy | Sept. 30-Oct. 3 |
| Morgan | McConnellsville | Sept. 9-12 |
| Morrow | Mt. Gilead | Sept. 23-26 |
| Muskingum | Zanesville | Sept. 2- 5 |
| Ottawa | Port Clinton | Sept. 17-19 |
| Pickaway | Circleville | Sept. 30 Oct. 3 |
| Portage | Ravenna | Oct. 7- 9 |
| Preble | Eaton | Sept. 30-Oct. 3 |
| Putnam | Ottawa | Oct. 8-11 |
| Richland | Mansfield | Sept. 24-26 |
| Ross | Chillicothe | Sept. 2- 5 |
| Sabina | Sabina | Aug. 18-22 |
| Sandusky | Fremont | Sept. 30-Oct. 3 |
| Seneca | Tiffin | Sept. 30-Oct. 3 |
| Shelby | Sidney | Sept. 30-Oct. 3 |
| Stark | Canton | Sept. 30-Oct. 3 |
| Summit | Akron | Sept. 30-Oct. 3 |
| Trumbull | Warren | Sept. 16-19 |
| Union | Marysville | Sept. 30-Oct. 3 |
| Van Wert | Van Wert | Oct. 2- 4 |
| Warren | Lebanon | Sept. 16-19 |
| Washington | Marietta | Sept. 2- 3 |
| Wellington | Wellington | Aug. 19-22 |
| Williams | Bryan | Oct. 7-10 |
| Wood | Tontogany | Sept. 30-Oct. 3 |
| Wyandot | Up. Sandusky | Oct. 7-10 |

### INDIANA.

| | | |
|---|---|---|
| Allen | Fort Wayne | Sept. 22-26 |
| Bartholomew | Columbus | Aug. 29-30 |
| Blackford | Hartford City | Sept. 23 26 |
| Bridgeton Union | Bridgeton | Aug. 25-30 |
| Boone | Lebanon | Sept. 8-12 |
| Camb. C'y A. H. M | Cambridge City | Sept. 16-19 |
| Carroll | Delphi | Sept. 9-12 |
| Cass | Logansport | Sept. 23-27 |
| Clay | Brazil | Aug. 18-23 |
| Clinton | Frankfort | Sept. 15-19 |
| Daviess | Washington | Oct. 7-11 |
| Delaware | Muncie | Sept. 9-13 |
| Dunkirk Union | Dunkirk | Sept. 2- 5 |
| Edinburg Union | Edinburg | Sept. 22-27 |
| Elkhart | Goshen | Sept. 30-Oct. 2 |
| Fayette | Connersville | Sept. 2- 6 |
| Fountain, W. & V. | Covington | Sept. 23-26 |
| Franklin | Brookville | Sept. 23-26 |
| Fulton | Rochester | Sept. 25-27 |
| Gibson | Princeton | Sept. 15-19 |
| Grant | Marion | Sept. 17-20 |
| Grecne | Linton | Oct. 7-11 |
| Hamilton | Ciccro | Aug. 26-29 |
| Harrison | Corydon | Sept. 1- 5 |
| Henry | New Castle | Sept. 16-19 |
| Heury, Mad. & Del. | Middletown | Aug. 19-22 |
| Howard | Kokomo | Sept. 1- 6 |
| Huntington | Huntington | Sept. 17-20 |
| Jackson | Brownstown | Aug. 25-29 |
| Jasper | Renssalaer | Sept. 9-12 |
| Jay | Portland | Sept. 30-Oct. 3 |
| Jefferson | Madison | Sept. 17-20 |
| Knightstown U'n. | Knightstown | Aug. 26-29 |
| Knox | Vincennes | Oct. 13-18 |
| Kosciusko | Warsaw | Sept. 24-27 |
| Lake | Crown Point | Sept. 30-Oct. 1 |
| La Grange | La Grange | Sept. 24-26 |
| La Porte | La Porte | Sept. 24-26 |
| Lawrence | Bedford | Sept. 9-13 |
| Loogootee A. & M. | Loogootee | Sept. 2- 6 |
| Madison | Anderson | Sept. 2- 5 |
| Marion | Valley Mills | Sept. 11-13 |
| Marion (colored) | Indianopolis | Aug. 26-30 |
| Miami | Peru | Sept. 16-19 |
| Middlefork Dist. | Middlefork | Aug. 25-29 |
| Monroe | Bloomington | Aug. 26-30 |
| Morgan | Martinsville | Sept. 2- 6 |
| Noble | Ligonier | Oct. 8-11 |
| Northeastern Ind. | Waterloo | Oct. 6-10 |
| Orange | Paoli | Sept. 23-27 |
| Perry | Rome | Sept. 29-Oct. 3 |
| Pike | Petersburg | Sept. 1- 5 |
| Posey | New Harmony | Sept. 9-13 |
| Prairie Farmer | Francesville | Sept. 16-19 |
| Randolph | Winchester | Sept. 16-19 |
| Remington A. A. | Remington | Aug. 26-29 |
| Ripley | Osgood | Aug. 12-15 |
| Rush | Rushville | Sept. 9-12 |
| Russellville U'n | Russellville | Aug. 25 30 |
| Shelby | Shelbyville | Sept. 2- 6 |
| Southeastern Ind. | Aurora | Sept. 3- 7 |
| Stark | Knox | Sept. 25-27 |
| Steubeu | Angola | Sept. 23-26 |
| Switzerland & O. | East Enterprise | Sept. 9-12 |
| Tippacanoe | Lafayette | Sept. 1- 6 |
| Tipton | Tipton | Sept. 23-26 |
| Thorntown Union | Thorntown | Sept. 22-26 |
| Union Ag'l & M. | Union City | Sept. 23-27 |
| Vigo | Terre Haute | Sept. 9 12 |
| Wabash | Wabash | Sept. 9-12 |
| Warren | West Lebanon | Sept. 8-12 |
| Warrick | Booneville | Oct. 7-11 |
| Wells | Bluffton | Oct. 6- 9 |
| Whitley | Columbia City | Sept. 30-Oc. 1 |

### ILLINOIS.

| | | |
|---|---|---|
| Adams | Camp Point | Sept. 1- 6 |
| Adams | Quincy | Sept. 9-12 |
| Boone | Belvidere | Sept. 2- 5 |
| Browu | Mt. Sterling | Aug. 26-29 |
| Bureau | Princeton | Sept. 16-19 |
| Carroll | Mt. Carroll | Sept. 16-19 |
| Cass | Virginis | Aug. 26-29 |
| Champaign | Champaign | Sept. 23-26 |
| Clark | Marshall | Oct. 1- 3 |
| Clay | Flora | Sept. 30-Oct. 3 |
| Coles | Charleston | Sept. 9-13 |
| Crawford | Robinson | Sept. 30 Oct. 3 |
| Cumberland | Majority Point | Sept. 16-19 |
| DeKalb | Sandwich | Sept. 11-14 |
| DeKalb | Sycamore | Sept. 16-19 |
| DeWitt | Clinton | Aug. 19-22 |
| Douglas | Tuscola | Sept. 16-19 |
| DuPage | Wheaton | Sept. 2- 5 |
| Edgar | Paris | Sept. 2- 5 |
| Edwards | Albion | Sept. 30-Oct. 4 |
| Fayette | Vandalia | Sept. 17-19 |
| Ford | Paxton | Sept. 9-12 |
| Ford | Gibson City | Sept. 23-26 |
| Franklin | Benton | Sept. 23-26 |
| Fulton | Canton | Sept. 23-26 |
| Fulton | Avon | Sept. 29-Oct. 3 |
| Gallatin | Shawneetown | Oct. 7- |
| Greene | Carrollton | Oct. 21-24 |
| Grundy | Morris | Sept. 9-12 |
| Hardin | Elizabethtown | Sept. 17-20 |
| Henderson | Biggsville | Sept. 9-12 |
| Henry | Cambridge | Aug. 25-29 |
| Iroquois | Onarga | Sept. 2- 6 |
| Jackson | Murphysboro | Sept. 23-26 |
| Jasper | Newton | Sept. 23-26 |
| Jersey | Jerseyville | Oct. 14-17 |
| Jo Daviess | Galena | Sept. 30-Oct. 3 |
| Jo Daviess | Warren | Sept. 23-26 |
| Kane | Elgin | Sept. 9-12 |
| Knox | Knoxville | Sept. 15-19 |
| Knox | Galesburg | Sept. 2- 5 |
| Lake | Waukegan | Sept. 29 Oct. 4 |
| LaSalle | Ottawa | Sept. 1- 6 |
| Lawrence | Lawrenceville | Oct. 8-11 |
| Livingston | Pontiac | Sept. 2- 6 |
| Livingston | Fairbury | Sept. 9-12 |
| Logan | Lincoln | Aug. 25-30 |
| Logan | Atlanta | Sept. 1- 5 |
| Macon | Decatur | Sept. 23-27 |
| Macoupin | Carlinville | Sept. 9-12 |
| Marion | Centralia | Sept. 30-Oct. 3 |
| Marshall | Wenona | Sept. 29-Oct. 4 |
| Massac | Metropolis | Oct. 8-11 |
| McDonough | Macomb | Aug. 25-29 |
| McHenry | Woodstock | Sept. 9-12 |
| McHenry | Marengo | Sept. 16-19 |
| McLean | Bloomington | Sept. 23-26 |
| Menard | Petersburg | Sept 2- 5 |
| Mercer | Aledo | Sept. 16-19 |
| Montgomery | Hillsboro | Sept. 16-18 |
| Morgan | Jacksonville | Aug. 18-22 |
| Ogle | Rochelle | Sept. 22- |
| Ogle | Oregon | Sept. 9-12 |
| Perry | Pickneyville | Oct. 1- 3 |
| Platt | Monticello | Aug. 26-29 |
| Pike | Pittsfield | Sept. 23-26 |
| Pope | Golconda | Oct. 2- 4 |
| Putnam | Hennepin | Sept. 9-11 |
| Randolph | Sparta | Sept. 24-26 |
| Randolph | Chester | Oct. 21-24 |
| Richland | Olney | Sept. 16-20 |
| Rock Island | Hillsdale | Sept. 17-19 |
| Rock Island | Cordova | Sept. 16-18 |
| Sangamon | Springfield | State fair |
| Schuyler | Rushville | Sept. 23-26 |
| Shelby | Shelbyville | Sept. 23-26 |
| Stark | Toulon | Sept. 22-27 |
| Stephenson | Freeport | Sept. 9-12 |
| Union | Jonesboro | Sept. 9-12 |
| Vermillion | Catlin | Sept. 9-12 |
| Vermillion | Danville | Sept. 2- |
| Vermillion | Hoopeston | Aug. 25-30 |
| Wabash | Mt. Carmel | Sept. 24-27 |
| Warren | Monmouth | Sept. 9-12 |
| Wayne | Fairfield | Sept. 23-26 |
| White | Carmi | Sept. 23-27 |
| Whiteside | Sterling | Sept. 16-19 |
| Whiteside | Morrison | Sept. 2- 5 |
| Will | Joliet | Sept. 23-26 |
| Williamson | Marion | Sept. 30-Oct. 3 |
| Winnebago | Rockford | Sept. 15-19 |

### MICHIGAN.

| | | |
|---|---|---|
| Armada | Armada | Oct. 1- 3 |
| Barry | Hastings | Sept. 30-Oct. 3 |
| Bay | Bay City | Sept. 23-26 |
| Benzie | Benzonia | Sept. 24-25 |
| Berrien | Niles | Sept. 23-26 |
| Calhoun | Marshall | Sept. 24-27 |
| Cass | Cassopolis | Oct. 2- 4 |
| Clinton | St. Johns | Oct. 7-10 |
| Clinton & Shia | Ovid | Oct. 14-16 |
| Eaton | Charlotte | Sept. 24-26 |
| Genesee | Flint | Sept. 8-Oct. 3 |
| Grand Traverse | Traverse City | Sept. 30-Oc. 3 |
| Gratiot | Ithaca | Sept. 30-Oct. 3 |
| Hillsdale | Hillsdale | Sept. 30-Oct. 3 |
| Ingham | Mason | Sept. 24-26 |
| Ionia | Ionia | Oct. 7-10 |
| Kalamazoo | Kalamazoo | Sept. 23-26 |
| Livingston | Howell | Sept. 24-26 |
| Mason | Lndington | Sept. 23-25 |
| Midland | Midland City | Oct. 8-10 |
| Oakland | Pontiac | Sept. 30-Oct. 3 |
| Sanilac | Lexington | Oct. 1- 2 |
| Saginaw | East Saginaw | Sept. 22-26 |
| Shiawassee | Owasso | Sept. 23-25 |
| Tuscola | Vassar | Oct. 1- 3 |
| VanBuren | Paw Paw | Sept. 30-Oct. 3 |
| Washtenaw | Ann Arbor | Sept. 30-Oct. 3 |

### WISCONSIN.

| | | |
|---|---|---|
| Baraboo | Baraboo | Oct. 1- 4 |
| Burnet | Grantsburg | Sept. 24- |
| Columbia | Portage City | Sept. 16-19 |
| Columbia | Columbus | Sept. 24-26 |
| Columbia | Lodi | Sept. 23-25 |
| Dodge | Juneau | Sept. 16-10 |
| Fon du Lac | Ripon | Sept. 23- |
| Fon du Lac | Fon du Lac | Sept. 23-25 |
| Green | Monroe | Sept. 17-21 |
| Grant | Lancaster | Sept. 17-20 |
| Grant | Boscobel | Sept. 24-26 |
| German | Sheboygan | Sept. 23-26 |
| Iowa | Mineral Point | Sept. 2- 9 |
| Jefferson | Fort Atkinson | Sept. 16-19 |
| Jefferson | Jefferson | Sept. 17-19 |
| Jefferson | Watertown | Sept. 22-26 |
| Kenosha | Kenosha | Sept. 16-21 |
| Lafayette | Darlington | Sept. 9-11 |
| Manitowoc | Clark's Mills | Sept. 16 21 |
| Osaukee | Saukville | Sept. 24-26 |
| Portage | Amherst | Sept. 16-19 |
| Racine | Burlington | Oct. 1- |
| Ripon | Ripon | Sept. 23- |
| Richland | Richland City | Sept. 16-18 |
| Rock | Janesville | July 3- 6 |
| Sheboygan | Sheboygan Falls | Sept. 16-18 |
| Waukesha | Waukesha | Oct. 7- 9 |
| Waushara | Wautoma | Sept. 24-26 |
| Wood | Grand Rapids | Sept. 2- 6 |
| Walworth | Elkhorn | Sept. 23-26 |

### IOWA.

| | | |
|---|---|---|
| Alamakee | Ludlow | Sept. 23-25 |
| Black Hawk | Waterloo | Sept. 17-19 |
| Boone | Ogden | Sept. 24-27 |
| Bremer Co. Ind. A. | Waverly | Sept. 16-19 |
| Buchanan | Indepcndence | Sept. 16-19 |
| Carroll | Mt. Carroll | Sept. 16-19 |
| Cass | Atlantic | Sept. 9-12 |
| Cedar | Tipton | Sept. 2- 5 |
| Cerro Gordo | Mason City | Sept. 16-18 |
| Chickasaw | New Hamptou | Sept. 24-26 |
| Clarke | Osceola | Sept. 9-11 |
| Clayton | National | Sept. 30-Oct. 2 |
| Crawford | Deulson | Sept. 10-12 |
| Dallas | Adel | Aug. 27-29 |
| Delaware | Manchester | Sept. 16-19 |
| Des Moines | Burlington | Sept. 23-26 |
| Fayette | West Union | Sept. 9-11 |
| Floyd | Charles City | Sept. 9-12 |
| Franklin | Hampton | Sept. 9-11 |
| Guthrie | Guthrie Centre | Sept. 10-12 |
| Hardin | Eldora | Sept. 23-26 |
| Hamilton | Webster City | Sept. 23-25 |
| Henry | Mt. Pleasant | Oct. 1- 6 |
| Howard | Cresco | Sept. 24-26 |
| Humboldt | Humboldt | Sept. 17-19 |
| Iowa | Marengo | Sept. 17-19 |
| Jackson | Maquoketa | Sept. 9-12 |
| Jefferson | Fairfield | Sept. 9-11 |
| Johnsou | Iowa City | Sept. 16-19 |
| Keokuk | Sigourney | Sept. 9-12 |
| Lee | Donnelson | Sept. 9-12 |
| Louisa | Wapello | Sept. 9-11 |
| Lucas | Charlton | Sept. 16-19 |
| Madison | Winterset | Sept. 23-26 |
| Mahaska | Oskaloosa | Aug. 26-29 |
| Marlon | Knoxville | Sept. 9-12 |
| Marshall | Marshalltown | Sept. 10-12 |
| Mitchell | Osage | Sept. 23-27 |
| Monona | Onawa | Sept. 17-19 |
| Monroe | Alsla | Sept. 17-19 |
| Muscatine | Muscatine | Sept. 15-20 |

| | | |
|---|---|---|
| Osceola | Sibley | Sept. 17-18 |
| Page | Clarinda | Sept. 9-13 |
| Poweshiek | Malcolm | Sept. 9-11 |
| Scott | Davenport | Sept. 1- 5 |
| Stuart District | Stuart | Sept. 10-13 |
| Taylor | Bedford | Sept. 24-27 |
| Union | Meehaniesville | Sept. 9-12 |
| Union | Mt. Joy | Sept. 9-12 |
| Union | Strawberry Pt | Sept. 23-25 |
| Union | Villisca | Sept. 10-13 |
| Union | Wt. Liberty | Sept. 9-12 |
| VanBuren | Keesauqua | Sept. 23-26 |
| Wapello | Ottumwa | Sept. 9-13 |
| Warren | Indianola | Aug. 26-28 |
| Washington | Washington | Sept. 9-12 |
| Wayne | Corydon | Sept. 24-26 |
| Winneshick | Hesper | Sept 23-25 |
| Worth | Northwood | |

KANSAS.

| | | |
|---|---|---|
| Allen | Iola | Sept. 15-18 |
| Anderson | Garnett | Sept. 10-12 |
| Burlingame | Burlingame | Oct. 1- 3 |
| Butler | Augusta | Sept. 10-12 |
| Brown | Hiawatha | Sept. 9-12 |
| Cherokee | Columbus | Sept. 24-26 |
| Cloud | Concordia | Sept. 24-26 |
| Cowley | Winfield | Oct. 8-11 |
| Crawford | Girard | Sept. 10-12 |
| Dickinson | Abilene | Oct. 8-11 |
| Doniphan | Troy | Sept. 23-26 |
| Ellsworth | Ellsworth | Oct. 2- 4 |
| Franklin | Ottawa | Oct. 1- 4 |
| Greenwood | Eureka | Sept. 10-12 |
| Harvey | Newton | Oct. 1- 3 |
| Jackson | Holton | Sept. 2- 5 |
| Jefferson | Oskaloosa | Sept. 30-Oct. 3 |
| Jefferson | Valley Falls | Sept. 9-12 |
| Kansas Valley | Lawrence | Sept. 2- 5 |
| Labette | Oswego | Sept. 3- 5 |
| Linn | La Cygne | Sept. 17-19 |
| Linn A. & M. | Mound City | Oct. 1- 4 |
| Lyon | Emporia | Sept. 16-19 |
| Marion | Peabody | Oct. 1- 3 |
| Marshall | Marysville | Sept. 30-Oct. 3 |
| Montgomery | Independence | Sept. 25-27 |
| Morris | Parkerville | Oct. 1- 3 |
| Neosho Valley Dis. | Neosho | Sept. 22-27 |
| Osage | Burlingame | Sept. 17-19 |
| Pawnee | Larned | Sept. 25-27 |
| Riley | Manhattan | Sept. 23-26 |
| Sedgwick | Wichita | Sept. 16-20 |
| 7th Judicial Dist | Chanute | Sept. 10-12 |
| Shawnee | Topeka | Sept. 30-Oct. 3 |
| Spring River | Baxter Springs | Oct. 1- 3 |
| Washington | Washington | Sept. 10-12 |

NEBRASKA.

| | | |
|---|---|---|
| Cass | Plattsmouth | Sept. 17-18 |
| Central | Hastings | Sept. 16-19 |
| Colfax | Schuyler | Sept. 24-26 |
| Dodge | Tremont | Sept. 23-27 |
| Fremont | Fremont | Sept. 23-26 |
| Hamilton | Aurora | Sept. 18-21 |
| Jefferson | Fairbury | Sept. 17-19 |
| Otoe | Syracuse | Sept. 3- 6 |
| Richardson | Salem | Sept. 24-26 |

KENTUCKY.

| | | |
|---|---|---|
| Bourbon | Paris | Sept. 2- 7 |
| Christian | Hopkinsville | Oct. 8-12 |
| Eminence | Eminence | Aug. 12-16 |
| Mercer | Harrodsburg | July 29-Aug. 1 |
| Nelson | Bardstown | Sept. 2- 5 |
| Simpson | Franklin | Sept. 11-14 |
| Union | Germantown | Sept. 9-14 |
| Warren | Bowling Green | Sept. 4- 8 |

MISSOURI.

| | | |
|---|---|---|
| Barton | Lamar | Oct. 7-10 |
| Boone | Columbia | Sept. 9 13 |
| Callaway | Fulton | Aug. 18 23 |
| Cape Girardeau | Cape Girardeau | Oct. 14-18 |
| Harrison | Bethany | Oct. 7- 9 |
| Jefferson | Jefferson City | Oct. 1- 3 |
| Miami | Miami | Aug. 26-29 |
| Moberly | Moberly | Sept. 30-Oct. 4 |
| Newton | Neosha | Sept. 25-27 |
| St. Francois | Farmington | Sept. 9 13 |
| St. Joseph | St. Joseph | Sept. 29- |
| St. Louis | St. Louis | Oct. 5 9 |
| Saline | Marshall | Sept. 2- 6 |
| Shelby | Shelbyville | Sept. 15-21 |
| Sturgeon | Sturgeon | Aug. 26-29 |
| Sweet Springs | Brownsville | Aug. 19-23 |

MARYLAND.

| | | |
|---|---|---|
| Alleghany | Cumberland | Oct. 7-10 |
| Baltimore | Coekeysville | Sept. 9-12 |
| Dorchester | Cambridge | Sept. 30-Oct. 3 |
| Harford | Bel Air | Oct. 7-11 |
| Montgomery | Roekville | Sept. 4- 5 |
| Kent | Chestertown | Sept. 16-18 |

**The New York Horticultural Society.**—Members should keep in mind the fact that the monthly meetings are held on the first Tuesday in each month. There are often exhibited at these meetings, choice specimens of plants, flowers, and fruits, and the doors are opened to the public, at 2 o'clock P. M. at each meeting. The locality—"Republican Hall." No 55 West 33rd St—is readily accessible by the elevated and other rail-roads.

**The Jack Rabbit,** or the Mule Rabbit, as it is called, from the great length of its ears, is very common in the Southwestern parts of the country. "A. B.," of Texas, asks how to make a trap to catch it; if any of our readers have successfully trapped it, we hope they will tell how. From the way in which it leaps across the country, we should think it difficult game to trap.

**Sunflower-Seed Cake.**—Professor Bergstrand, of the Royal Agricultural Academy, Sweden, has recently investigated the feeding value of oil-cake from the seeds of the Sunflower. It contains 13 to 16 per cent of fat, and 35 to 36 per cent of nitrogenous matter, which is very rich for an oil-cake. It has an agreeable taste and is relished by cattle. When fed to milch cows it has improved the quality and increased the quantity of milk. It is valuable also for fattening animals. Of the value of sunflower *seeds* for various uses, we have no doubt, and in view of this, farmers are frequently advised to cultivate them. It should be recollected that the *plant* of the sunflower is remarkably rich in potash, and would rob the soil of this most valuable constituent more rapidly than almost any other crop. If raised for the sake of the seeds, the stalks and all refuse should be gathered and burned, and the ashes returned to the land, otherwise it will impoverish the soil to a greater extent than the value of the seeds will compensate for.

**A Fruit Dryer.—The "Zimmerman."**—This fruit dryer has been sent for trial, but it is rather too early to put it to a practical test for a report the present month, as fruit proper for drying, corn, etc, are not quite in season with us. An examination of it, shows it to be constructed upon the correct principle, and almost exactly like a dryer which we constructed some 30 years ago, but not for fruit, and which we did not have patented. From former experience with a dryer closely resembling this, we feel almost as sure of the excellence of the "Zimmerman," as if we had put it to the test, which we propose to give it. The immense number now in use, show that it has exactly hit the popular want.

**An Elevator in a Building.**—"D. D. K.," Bethel, Ct. There is no difficulty in arranging an elevator. A well in which it works is to be provided, fitted with a slide at each corner made of a piece of half-round 2-inch wooden rod. These receive the thrust of grooved wheels fastened to the corners of the box, and which are forced against the rods by spiral springs. The box is made as may be convenient for shape and size, and the hoisting apparatus is an endless rope passing over a pair of pulleys and by which the box is drawn up and down. A balance counter weight should hang so as to rise and fall as the box goes down or up. This should work between slides similarly to the box to avoid noise.

**Drinking Sour Milk.**—The people in the rural districts of the Southern States, prefer sour milk to sweet, and will offer it to a traveller unless he expressly asks for sweet milk. This preference appears to be the out-growth of necessity, as in warm climates, sour milk is the rule, and not the exception. With better methods of keeping milk, which the modern inventions provide, it is probable that the preference for sweet milk will come with the ability to preserve it in that condition.

**Archery.**—That archery is becoming an "institution" in this country, is indicated by the appearance of a journal devoted to its interests. The "American Toxophilite," a monthly, comes to us from Kansas City, Mo., and is a bright and lively sheet filled with archery items. If any of our readers are puzzled over the title, we may save them some trouble by saying that Toxophilite is made up from the Greek words meaning *a bow*, and *to love, i.e.*, a lover of the bow.

**"Raising Water up Hill."**—An article with this title, appeared in our number for July last, on page 261. It contained a most stupid typographical error, which, late as it is, we desire to correct. Those who keep their numbers—which includes the great majority of readers, are requested to turn to the page named, and on the third line from the bottom of the left-hand column, cross out with a pencil, the word "water," and insert *winter*, so that it will read, "for use in the winter."

**About Notices.**—Strangers sometimes make mistakes. Not long ago, some one sent his "crinkum," with a note saying that he would advertise it if we would give it a favorable notice. It should be understood that sending an article, machine, implement, or whatever thing it may be, to the *American Agriculturist* for trial, does not put us under any obligation whatever to notice it. When one pays for his advertisement as agreed, there all *obligation* ceases. If one sends an article, whatever it may be, to this office, for trial, it is sent to one of the several farms or gardens intimately connected with the paper, where it receives a full and careful trial at the hands of practical men. If the implement, after being thus tested, appears to be one we think *our readers* should know more about, we are then very apt to say so; but we wish it understood that in accepting an article for trial, we enter into no obligation to give it a notice. The editorial pages are for the benefit of our readers; whatever is published there is with a view to its usefulness to them; if a notice that we may give there benefits another, that is his good fortune.

**Basket Willows.**—We have several times replied to inquiries, that there was no difficulty in growing willows, but that the trouble was to find a market for them. The willow trade is in the hands of a few importers, who, from the airs they put on, must be foreign counts or princes out of the royalty business just now. If they inform one that willows can't be grown in this country, it is a remarkable condescension, and some will not unbend sufficiently to say that. Our inquiries among these fellows taught us two things—how disagreeable people can be when they give what little mind they have to it, and that an American grower could not give—much less sell, his willows to their High Mightinesses. Seeing no chance of selling, we have not encouraged the growing. A few days ago, happening in at the Commission house of E. & O. Ward, No. 279 Washington St., whose card has been in our advertising columns these many years, we saw bundles of willows, and found that it was not an unusual thing for them to receive these among other *produce*—and that basket makers do not agree with the importers' view that willows can not be grown here, as they purchase them, knowing that they are American. The fact that willows can be disposed of through the Commission houses, will give encouragement to those who wish to cultivate them.

**Vinegar Eels.**—"A. B. K.," Taunton, Mass. The minute animals called vinegar eels, are entirely harmless, but if the idea of eating them is unpleasant, they may be destroyed by heating the vinegar. As it acts upon metallic vessels, it should be heated in earthenware or glass. Set a jar or jug containing the vinegar in a kettle with some chips or other material under it, to keep it from actual contact with the bottom of the kettle, nearly fill this with cold water, place upon the fire, and when the water boils, keep it at that temperature, until the vinegar is well heated through. If cooked eels are objected to, filter through flannel, or fine cotton cloth.

**The Edelweiss.**—This plant, figured and described last month on page 307, is one about which a great deal of unnecessary fuss is made in some parts of Europe. "C. B.," Bloomfield, N. J., sends us an item from the "*Deutsche Zeitung*," of Vienna. From this it appears, that the government of Bern, (Switzerland), has prohibited the sale of the Edelweiss, probably with a view to prevent its extermination. The object of the item is, to show that this prohibition is superfluous, as the plant has long been cultivated in the park of Prince Camille Rohan, in Bohemia, and that a nursery at Turman, sends out thousands of the plants, which are raised there.

## New Books.

THE BOTANICAL TEXT BOOK. — Part I. Structural Botany. By Asa Gray. New York. Ivison, Blakeman, Taylor & Co. This is the sixth edition of a work which first appeared under the above title in 1842, and which was preceded by "The Elements of Botany," some six years earlier. Its successive editions have been welcomed by botanists, not only in this country, but in England, as the best exponent of the state of knowledge upon the topics of which it treated. The former edition, the fifth, was issued in 1857, and those familiar with the subject will not be surprised to learn that the present edition is entirely re-written. Twelve years ago, one volume sufficed for all that the average student need know of Structural Botany. At present, a series of four volumes is contemplated, of which this is the first. This is devoted to the structure of plants, the various shapes their parts assume, and the relations of their various organs to one another. It will be followed by a volume on Physiological Botany (vegetable Histology and Physiology), by Prof. Goodale. This will give the minute structure of plants, and the methods of growth. A third volume, by Prof. Farlow, will be devoted to the Flowerless Plants, Cryptogamic Botany—the Ferns, Mosses, Seaweeds, Fungi, etc. The series will be completed by a fourth volume on Systematic Botany—the natural orders of plants, their Classification, Distribution, Products, etc., by Prof. Gray. While the beginner can have no better guide in studying the structure of plants, as a preparation for their determination in systematic works, than the "First Lessons," by the same author, the advanced student will gladly welcome the present "Text Book." He will find here the same clearness of statement, the same happy method which clears up obscurities, the facility in presenting recondite matters "as clear as daylight," which characterized the former editions, and for which the author is unequalled among teachers of science. A critical review of the work is not called for in this place, and we need only say that the botanical student who would know the latest views of Organography and Morphology, and all that relates to the structure of flowering plants, will find them given here with a clearness and attractiveness not to be found elsewhere in the language. The intelligent general reader who would know something about plants and their structure, will find the subject presented in the most attractive manner, as the author is not one of those who, to appear profound, finds it necessary to be obscure. The Glossary of Botanical Terms is remarkably full, and the work is abundantly illustrated. Sent from this office at the publishers' price, $3.00.

THE PARKS AND GARDENS OF PARIS.—By W. Robinson, F.L.S. London: Macmillian & Co. Second edition

revised. When the first edition of this work appeared, several years ago, we called the attention of our readers to its instructive character. The present edition is greatly enlarged in matter and illustrations, the fruits of the author's subsequent visits to Paris and vicinity. The work begins with descriptions of the various public Parks, Gardens, Squares, and notable Avenues and Boulevards of the City, with accounts of some private gardens. Then come very full accounts of the fruit-growing localities around Paris, with descriptions of the various methods of training and culture. The market gardens from which the City is supplied have their operations given in detail, including those of the celebrated Asparagus gardens of Argenteuil, the wonderful Mushroom cultures in the caves under Paris, the unequalled salad gardens, etc. Besides, the flower markets and the methods by which they are supplied are treated in full. These various topics are illustrated by a profusion of engravings, some of them of exquisite beauty. In the illustration of a park, the *Parc Monceau*, for example, not only do we have choice views in the grounds, but separate groups, specimen plants, plans of planting, and other illustrations of its beauties, as well as "ugly needless structures," and methods of planting to be avoided. The chapter on "Ivy in Paris" shows how useful this plant is made in public and private decorations. Being educated as a gardener, the author is qualified above most writers on such matters to give accounts in full detail of the methods pursued in the noted fruit-growing localities, and in the celebrated market and flower gardens. This portion of the work is illustrated in the greatest detail, showing methods, implements, packages, or whatever may make the account complete. This work can not fail to be a most valuable guide book to every one with horticultural tastes who visits Paris and its vicinity. On the other hand, the "stay at home traveller" can get a better idea of the horticulture of the locality than from any other source, while the practical gardener and orchardist can not fail to find some hints to aid him in his own practice. Price, $7.50.

Summer and Its Diseases.—By James A. Wilson, M. D. Philadelphia: Lindsay & Blakiston. The success of the flashy medical books and quack medicine treatises, is largely due to the general desire of people to know something about the common diseases, and as medical men have not supplied correct information in a popular form, the public have taken up with such books as they could find. We look upon the series of "American Health Primers," of which this work is a member, as a move in the right direction. It gives compact, clearly written treatises upon those medical and sanitary topics concerning which popular instruction is most needed, by men of eminence in the medical profession. Very properly, in this work on Summer Diseases, and in its companions the chief object is to show how to *prevent* the diseases, which is as important as to cure them, though that part of the subject is not omitted. In opening the present work by hazard, it was at the chapter on *Cholera Infantum*, where we read, "without the advice of a physician, never give it (the child), any *Spirits, Cordials, Carminatives, Soothing Syrups*, or *Sleeping Drops. Thousands of children die every year from these poisons.*" We can commend this work as eminently safe and useful. Price, 50c.

Long Life, and How to Reach It.—By Joseph G. Richardson, M. D. This is another one of the "American Health Primers," published by Lindsay & Blakiston, Phila. It consists of plain common-sense directions on the avoidance of diseases, and plain directions in the careful use of and preservation of the various faculties. It has no secret for reaching a long life, other than by the observance of those sanitary rules which should be heeded by every one, and which are here presented in an attractive manner. Price, 50c.

## The West India Green Valley Grass.

During the past winter and spring, Messrs. R. F. Nix & Co., Hamburg, Iowa, advertised, under the above name, the seeds of a grass for which remarkable qualities were claimed. The label upon the packets of seed stated that "It produces from **12 to 14 tons of hay per acre**, and **3000 to 5000 bushels of roots** which are good for stock of all kinds, especially hogs. It will grow from one seed from One to Two Hundred Stalks." The advertisements went more into detail and made still more wonderful statements. A remarkable fact in relation to this seed was the sending of packages to the editors of agricultural papers. Not only this, we were favored with a photograph of a gentleman seated and reading at his ease, while the grass towered as far above his head as that was from the ground. As persons engaged in a fraudulent enterprise do not send specimens to editors for trial, we wrote Messrs. Nix & Co., inquiring as to the grass, its botanical name, and asked for a specimen of its flowers if it was to be had. They frankly replied that they did not know the scientific name of the grass, but would like to learn what it was, and as an indication of this wish, they sent from their stock, such specimens as they could find. While these specimens sent by Messrs. Nix & Co., gave us a fair ground for *guessing* what the plant was, we could not feel *sure*, and as in our correspondence, these gentlemen had shown all possible fairness, and were evidently acting in good faith, it would not be proper for us to act upon an uncertainty and say what the grass was from imperfect materials. Therefore, in fairness to them, we preferred to wait until seed had been sown and the plants had come into blossom, before we gave its name and character. This has been done, and the grass proves to be what we from the first suspected,

THE GUINEA GRASS (*Sorghum halapense*).

This grass was described in 1877, on page 99, and figured on page 100. It is therefore no novelty, as it has been in cultivation in the Southern States for years—for at least 40 years. One cultivator, N. B. Moore, near Augusta, Ga., has profitably cultivated 100 acres of this grass for many years; he manures generously and makes three or four cuttings during the season, but makes no mention of utilizing the roots—or properly the "root-stocks." How far this especially southern grass may be made useful in the Northern States, whether for hay, or for its "roots," is still an unsettled question, and we will thank those who in different parts of the country have made a trial of it under the name of "The West India Green Valley Grass," to give us their experience with it. We think it very doubtful if the "roots" will live in the ground through our northern winters, and would suggest to those who have the plant and wish to experiment further with it, that they take up a stock of these "roots" and keep them in sand or sandy soil over winter, as they will no doubt get returns sooner from planting bits of these next spring than from sowing the seed. This grass has not made much progress in the Southern States on account of the difficulty of eradicating it when once established; but to those who, like Mr. Moore, above quoted, make it a permanent crop, this is not a disadvantage. Its value in the Southern States, when properly managed, would seem to be well established. Now let us hear from others, not only as to its value as green forage and hay, but as to the feeding value as well as productiveness of the roots?

## Horticultural Items.

For a mass of color in mid-summer, the Double Tiger Lily is very effective; the single flowers are irregular and ragged, but at a little distance this is not noticed and the effect of a clump is very brilliant and striking....We every now and then hear of the Blue Gum (*Eucalyptus*) in Britain. The "Farmer's Gazette" states that there are, at Killarney, Ireland, two trees, the larger of which is 50 ft. high, and 2 ft. 6 in. in circumference....*Paulownia imperialis* seems to be so uncertain in England, that its occasional flowering is recorded...."Irises are gradually coming to the front again," says a writer in the (London) "Garden." We are glad to learn that this is the case in England, and hope that Americans will act upon the hint and appreciate these flowers as they deserve....Sod fences are in use in some of the Western States; this reminds us that we have seen in Mexico, gardens surrounded by *adobe*—sun-dried mud fences, upon the tops of which were planted *Opuntias*, or cactuses of the "Prickly Pear" style, and perfectly hog proof .. The Japanese Iris, *Iris Kæmpferi*, has done remarkably well this year. It is one of the hardy plants that every one should have.... "The Garden" (London), gives in its issue for July 19, a colored plate of the various Hellebores, showing how beautiful these early flowering plants can be....According to a European writer, there are in the Imperial Library of China, 15,000 works on flowers, of which 500 are devoted to the Rose....Our common Pitcher Plant, Side-Saddle flower, Huntsman's Cup, or Whippoorwill's Shoe, as it is variously called (*Sarracenia purpurea*), is advertised in England as having "withstood the severity of the late winter." As this plant is found in the Hudson's Bay region, we do not in the least doubt it....The manner in which the English journals bewail the almost incessant rains that have fallen, show a most unfavorable outlook for gardeners as well as farmers....If one can have but a single early pear, let it be Manning's Elizabeth; when the tree gets age it bears immense crops of the most delicious fruit....Early American peaches, the Amsden and Alexander have made a favorable showing in England, notwithstanding the unfavorable weather ... A gardener in England proposes to make use of carrier pigeons to inform him of the wants of the family when 40 miles away....The second blooming of apple-trees is not unusual; the Early Harvest will often bear a few late flowers which are double, and thus give rise to the reports of roses upon apple-trees, and set wise heads at work to account for the phenomenon....Tuberous Begonias do not seem to have received the attention with us that they get abroad. They are most brilliant summer flowering plants ...A new budding machine has been introduced in England, especially commended for budding roses. The best budding "machine" that we know of is a boy brought up in a peach nursery; some of these will slip in 2,500 buds in a day and not think much of it... The "Gardener's Chronicle" spells it "Potatos"—does it by analogy write "Tomatos?" This would be preferable to "Tomartuses," as sometimes heard in our markets....Peaches are being largely planted in the counties along the Hudson River, N. Y.; in a recent visit to Orange Co., the trees we saw promised a full crop. Extensive plantations have been made in Ulster Co. Let "the Peninsula" look out....Nitrate of soda is claimed to have produced wonderful cauliflowers in England this year ...Drying grasses and flowers to send to England is recommended to colonists in India, Africa, and Australia....Our native Sarracenias have been hybridized in Europe, and several interesting intermediate forms produced.

## Items of Interest.

No Maryland State Fair this year....Michigan talks of putting her girls on a footing with her boys at the State Agricultural College....The "American Grocer" estimates that over 19,668,000 cans of tomatoes were put up last year....A single ant will lay millions of eggs. ....Nine thousand head of cattle are shipped from Florida to Cuba each month....Postage hereafter must be *entirely* prepaid....131,981 boxes of cheese were shipped from New York during the last week of July....There is a growing demand for American wind-mills abroad.... A snow-storm in Southern France is another of the strange things which are happening nowadays....A new pass over the Rocky Mountains has been discovered by Prof. Marsh....Illinois has 122,348 mules and asses this year....Delaware expects to send 3,700,000 baskets of peaches to market. ..A Minnesota hen is doing two day's work in one—32 eggs in 16 days....The latest for electricity—controlling a fractious horse by it while driving ...Feed the "pussley" to confined chickens. They eat it with a relish....Bread in London is three cents a pound, lower than for many years....Cod fishing along New Brunswick is excellent this season....The Connecticut Valley tobacco crop promises to be unusually large....Texas has considered her education and appropriates $600,000 for school work. Now she only needs good teachers....Harvard College graduated its largest class this year, over 200....The Canadian Government is engaging farmers to instruct the Indians in farming in the Northwest....Total value of postage stamps, stamped envelopes, and postal cards sold during the past year was $29,539,050, an increase of $971,866 over the previous year....The French Minister estimates that France will pay $100,000,000 for foreign grain, most of which sum will come to America....The United States uses 1,200,000 ounces of quinine as a febrifuge....Illinois gives $15,466 in premiums at her next State Fair....Grasshoppers are devastating the wheat fields of Southern Prussia....The "Golden Gate," a 17-foot schooner, has left Boston for a trip around the world. Two persons go with it....Potato bugs a short crop this year—too much Paris green. ....One hundred years ago there were only four newspapers in America....During the year ending June 30, 1879, 99,224 immigrants landed at New York....A farmer and ten of his cows were struck by lightning in England. ....Telephones are worked between Petersburg, Va., and Wilmington, Del., 226 miles....Real estate is rising in New York City; a good sign of better times... Missouri has a corn-cob pipe factory; pays a cent a piece for suitable cobs, and cannot supply the demand....Savannah shipped 8,650 barrels of rosin to Liverpool in a single cargo....Maine farmers get one-fourth more hay this year than usual....Five hundred barrels of lubricating oil at a time were shipped to Europe from Erie, Pa.... Twelve different sites are proposed for the next World's Fair in New York....Boston drinks 15,000 gallons of soda water per day....The English Hop-crop is reported as being almost a failure....Southern California is expecting an immense grape and orange crop... The direct losses to sheep-owners in the United States from ravages of dogs is over $1,000,000 annually....Nebraska is reported to have gained 72,662 in population in the last year. ....Illinois wheat will probably average twenty bushels per acre for 1879... Results of our last Fourth of July, so far as heard from, are 18 killed, 107 wounded.. .A quail was shot in Florida with a ruby in his throat.... 1,000,000 acres of the soil of India are devoted to the growth of the poppy, for the production of opium.... M. Duchartre calls attention to some experiments which go to show that melons raised from fresh seed bear a larger per cent of male flowers than plants grown from seeds kept for some time....Each day there are 1,800,000 gallons of petroleum brought to the surface of the earth. ....The Esterbrook Steel Pen Co. makes over 150 styles of pens....A ragged beggar recently dropped, accidentally, a package of $400....Ice weighs about the same as green wood—7,000 pounds per cord .. Now let farmers think of the comfort and value of an ice-house....A horse should have 1,200 square feet of breathing room in a stable, and the more the better....Sleepy Tom, a blind

horse, has made the fastest paeing time on record, 2.12¼ minutes... A poor Florida fisherman, while digging worms, found a pot containing $1,400 in gold coin.... Kentucky makes about 250,000 barrels of whiskey, consuming 3,000,000 bushels of corn and 500,000 of rye.... Some Jersey cows will give in one month their own weight of milk....A Texas wool-grower has a sheep with variegated black and white wool....There are over 724 millions acres of Government land surveyed and open to settlement, and 1,000 millions yet to be surveyed.... A cattle epidemic of a serious nature, we learn, has made its appearance at Lincoln, Nebraska. Fifty head per day die in that vicinity....Texas has 3,674,000 sheep....Salt your cattle regularly....A poppy has been found growing north of the 83d parallel, and is believed to be the most northern flowering plant thus far discovered....The annual production of bees-wax in the United States is 20 million pounds....Wool growing is becoming a leading industry in Western Texas....Thirty swarms of bees swarmed at once on a single tree in Boonesville, Ohio.... Always start a horse by the voice, and never by the whip. ... France, Belgium, and Cuba are the only countries producing a surplus of sugar. In the first two named, it is from the beet; in the last, cane-sugar....Eleven cheese factories were built in one county in Wisconsin last winter. All in operation....It requires not one-fourth as much power to move a load on water as it does by rail.... The City of New York disposes of 12,000 cattle per week. ....The Indiana State Board of Agriculture has created a woman's department in their State fair....Virginia has 12 cotton factories. She had none before the war.... Buckwheat should not be fed unground, as the sharp edges of the grain irritate the animal's stomach....Some factories use 2,000 pounds of vegetable ivory daily, making it into various small wares....The balance of trade in favor of the United States for the year ending June 30, 1879, was 267 millions of dollars....Thomas Taylor, Microscopist of the Department of Agriculture, is discharged by Commissioner Le Duc....The St. Louis Cotton Exchange offers $3,125 in premiums for this staple article at the coming St. Louis fair....Failure of crops, depression in trade, and foreign war, will make England thoughtful, if not sad....A Heliotrope 14 years old, and covering a space of 10×14 feet is reported....Michigan has 70,000 more acres of wheat this year than last....Many small farmers in France pay their rent from their poultry yards. ...At Worth, Iowa, a ram killed a dog which had badly torn a young lamb in the flock. Not a bone was unbroken in the dog's body, the revenge had been so severe....The acreage of Arkansas cotton crop is four per cent larger than last year....Italy has ordered 20,000 tons of coal from Philadelphia and Reading.

## Nurserymen's Catalogues Acknowledged.

We do not usually acknowledge the autumn catalogues until October, but the practice, of layering strawberries in pots, has become so general, and as the nursery catalogues, are, with but few exceptions, issued for the purpose of bringing these into early notice, we, for this reason, give the nursery catalogues *only*, at the present time. To avoid repetition, we may say that all the following who issue special strawberry and small-fruit catalogues, offer strawberries, pot-grown, or layed in pots, and of course have those started in the usual way.

NURSERYMEN.

JOHN S. COLLINS, Moorestown, Burlington Co., N. J. —Small fruits. Potted strawberries.

ELLWANGER & BARRY, Rochester, N. Y. — Special strawberry list. Useful directions for culture.

W. L. FERRIS, JR., Dutchess Nurseries, Ponghkeepsie, N. Y.—Strawberry catalogue.

A. HANCE & SON, Rumson Nurseries, Red Bank, N. J. —Strawberries.

PETER HENDERSON & Co., No. 85 Cortland St., New York. Strawberries, with a handsome plate, and pot-grown grape-vines.

J. T. LOVETT, Monmouth Nursery, Little Silver, N. J. —Strawberry catalogue with useful cultural directions.

WILLIAM H. MOON, Glenwood Nurseries, Morrisville, Pa.—Strawberry catalogue with notes on cultivation.

JOHN PERKINS, Moorestown, Burlington Co., N. J.— General list of frnit and ornamental trees.

E. P. ROE, Cornwall-on-the-Hudson, Orange Co., N. Y. —A full and instructive catalogue on small fruits.

SAMUEL H. RUMPH, Willow Lake Nursery, Marshallville, Ga.—General catalogue of fruit trees and small frnits; very full in peaches.

B. F. TRANSOV & Co., Humboldt, Tenu.—Fruit and ornamental trees, flowering shrubs, etc.


## New Fall or Winter Wheats,

**HEADS SIX INCHES LONG.**

**Champlain** and **Deflance.**

These two varieties which have succeeded so wonderfully as *Spring Wheats*, have been shown by experiments to be equally valuable as *Winter* varieties. We are confident that they will soon supercede all the varieties now sown. Send for Wheat circular giving full description and prices. Mailed free to all applicants. **B. K. BLISS & SON'S,**
P. O. Box, 4,129. **34 Barclay St., New York.**

## TREES

A large assortment of **Fruit, Shade, Ornamental Trees** and **Shrubs, Roses, Greenhouse Plants,** etc.; **Gregg Raspberry, Snyder Blackberry, Apple Seedlings.** New Fall Catalogue free. Established 1852
BAIRD & TUTTLE, Agents, Bloomington Nursery, Illinois.

**CHERRY TREES, CRAB TREES, CURRANTS, HEDGE PLANTS, and other NURSERY STOCK.**

For sale at the **MORRIS NURSERIES,**
GEORGE ACHELIS, Proprietor,
West Chester, Pa.

**READ THIS.—Extraordinary Success** in raising potatoes is realized by growing the **"Mammoth Pearl."** Crops doubled wherever introduced. **Far** ahead of **all** other varieties. Growers of potatoes, send for full prices of this and other very good varieties to J. A. EVERITT, Box 229, Watsontown, Northumberland Co., Pa.

## What Farmers Want.

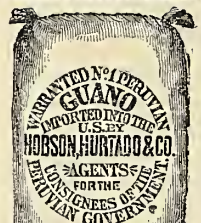
They want Pure Ground Bone! Why—because it contains those elements taken from the soil in the grain and carried away, thus impoverishing the land. Pure Premium Bone, made of dry, hard, unsteamed bones, supplies just this waste, as every farmer can learn by practical experience at a trifling cost. Send for a full explanation of how it works.
**Excelsior Fertilizer Co., Salem, Ohio.**

## Peruvian Guano,

imported *direct* from *Peru* by the undersigned, is the
**LEADING FERTILIZER**
throughout the world.

It contains *all* the elements of **Plant-food** in the most **CONCENTRATED, BEST and CHEAPEST** condition, and is adapted to any
**SOIL, CROP and CLIMATE.**

Price Lists and descriptive Pamphlets as to its qualities: Brands under which it is sold, and brief directions for its use, will be sent gratis on application to
**HOBSON, HURTADO & CO.,**
Agents for the Consignees of the Government of Peru,
**No. 63 Pine St., New York.**

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**DEALERS IN**
## PERUVIAN Guano
**EXCLUSIVELY,**
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## Fertilizers for the Fall of 1879.

The Best.
- **No. 1 Peruvian Guano.**
- **Lobos Peruvian Guano.**
- **Complete Manure.**
- **Russel Coe's Superphosphate.**
- **No. 1 and Pure Ground Bone.**
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Special prices to **Farmers** and **Dealers** who will apply; stating quantity desired. METROPOLITAN AGRICULTURAL WORKS. **H. B. GRIFFING,**
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## BONE DUST.

**The Tried and Never Failing Land Fertilizer** for all crops. No experiment necessary. It has proved its value by years of actual use all over the world. We can supply the best Bone Dust made. Bone for Chickens a specialty. Send for circular.
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**ASHES.**—10,000 bushels unleached wood ashes for sale at Lynn's Wood-Burning Lime Works, Freemansburg, Pa., line of Central R. R. of New Jersey.

## Hardy Perennial Flowers.

WOOLSON & Co., Passaic, N. J., who make a specialty of Hardy Flowers, would call attention to the fact that the autumn is the best season for transplanting the majority of these plants. Among a large number of specially desirable kinds they offer

**The Japan Irises,** *Iris Kæmpferi.* These are quite different from the common Irises, and present a large and attractive variety. Each 25c. Per dozen, $2.50.

**Garden Phloxes.**—The best varieties selected after testing over 200 kinds. Each 25c. Per dozen, $2.00.

**Lilies, Tulips,** and many other rare and showy bulbs, should be planted in autumn.

**Hardy Climbers, Choice Shrubs, Hardy Ferns,** and other plants, sent safely by mail to all parts of the country.

Our collections of European Irises and of species of Phlox are large and varied. For these and a very full list of other Hardy Perennials, send for our descriptive Catalogue of 80 pages, which is mailed free on application to
**WOOLSON & CO., P. O. Box 180, Passaic, N. J.**

## H.C.L.D.

Warranted the best Leather Dressing made. For all leather needing any dressing.—Agents: A. Chadwick, Kansas City, Mo. L. A. Martz, Evansville, Ind.

☞ Ask reliable dealers for it, or address my Agents or
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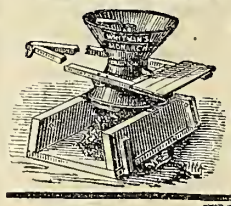

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FEED CUTTERS, Etc.
Satisfaction guaranteed. Send for Circulars and prices.
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My self-supporting **Truss Fence** costs 30 cts. a rod less than post and board. Cannot be blown or pushed down; is not patented. Can be made rainy days under cover. Illustrated circular, with full directions, for making, sent for 25 cts. Address
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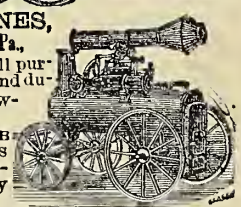
SAW, GRIST AND COB MILLS, GINS, PRESSES AND MACHINERY generally. Inquiries promptly answered.



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Boiler & Lining of Engine Extra. other makers.

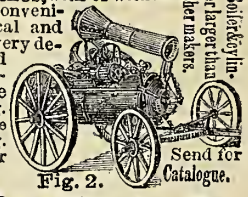
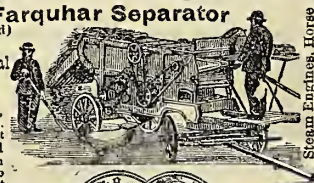


Fig. 2.

Send for Catalogue.

## The Farquhar Separator

(Warranted)
Penna. Agricultural Works, York, Pa.
Lightest draft, most durable, simplest, most economical and perfect in use. Wastes no grain, cleans it ready for market.



Steam Engines, Horse Power and Threshers of all kinds. Also, Ploughs, Cultivators, &c., &c.

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**FOR WHEAT, FOR RYE, FOR SEEDING DOWN.**

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**FOR ALL GRAIN CROPS.**

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# PERFECTED BUTTER COLOR

**Gives Butter the gilt-edge color the year round.** The largest Butter Buyers recommend its use. Thousands of Dairymen say **IT IS PERFECT.** Ask your druggist or merchant for it; or write to ask what it is, what it costs, who uses it, where to get it. **WELLS, RICHARDSON & CO., Proprietors, Burlington, Vt.**

## Perfect Milk Pail

**Price $2.00.**

Preserves Milk from specks and lumps of **dirt** and **dung,** and from **the odors** of the stable, or the yard, and of the milker, which give the so-called **animal odors.** A seat while milking; holds 14 qts.; can not be stepped in, kicked over, nor damaged by the cow; the milk is strained before entering it. If you desire purer, more wholesome and fragrant milk, cream, and butter, than ever before, send $2.00 for a pail, or get circulars and induce the store-keeper to order a dozen.

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Also dealers in all kinds of Dairy Supplies.

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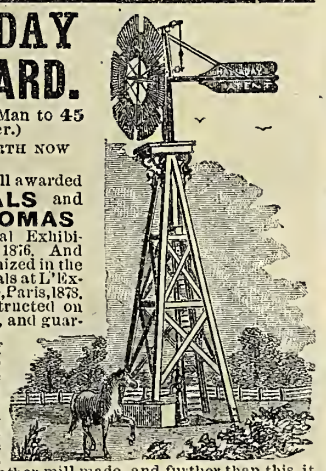
(17 sizes—from 1 Man to 45 Horse Power.)

**$3,500,000** WORTH NOW IN USE.



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This mill is constructed on scientific principles, and guaranteed to do good work in any kind of wind. It is also guaranteed to be well made of good material; to be perfectly self-regulating; to possess more power; to be more reliable in all kinds of winds, than any other mill made, and further than this, it is **Guaranteed NOT TO BLOW DOWN.**

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## THE CHAMPION

**Is the Best Wind-Power in the Market.**

Is perfectly self-regulating, runs no faster in a gale than in a light wind, is very powerful, and never blows away while the tower stands.

We also manufacture the **Iron Screw Wind Mill,** and the Celebrated **Star Wood Pumps,** with porcelain lined iron cylinders, wood eave-trough, tubing, etc., etc.

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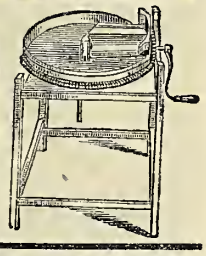

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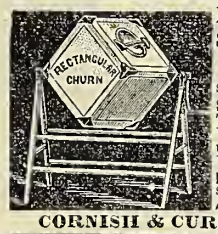


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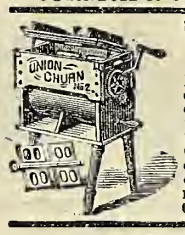


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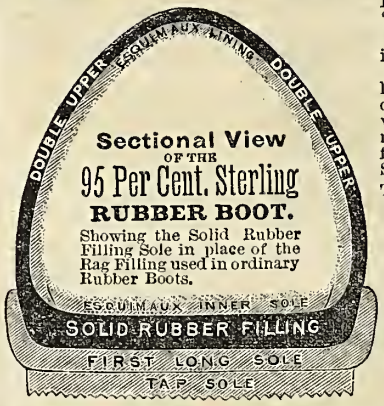

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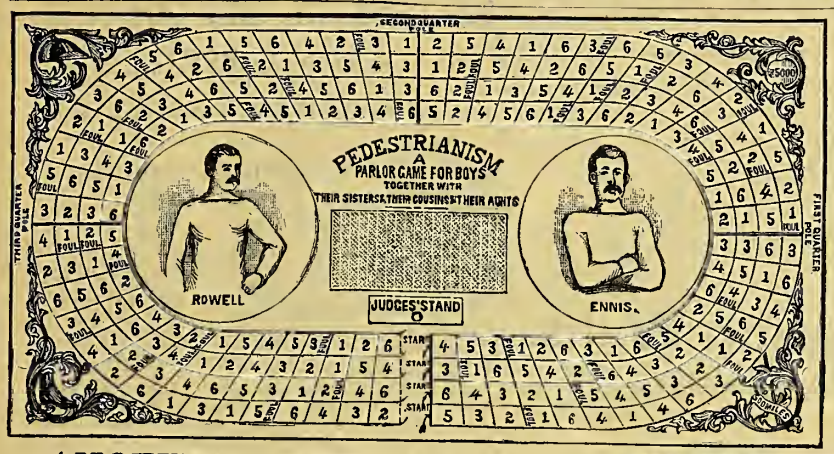


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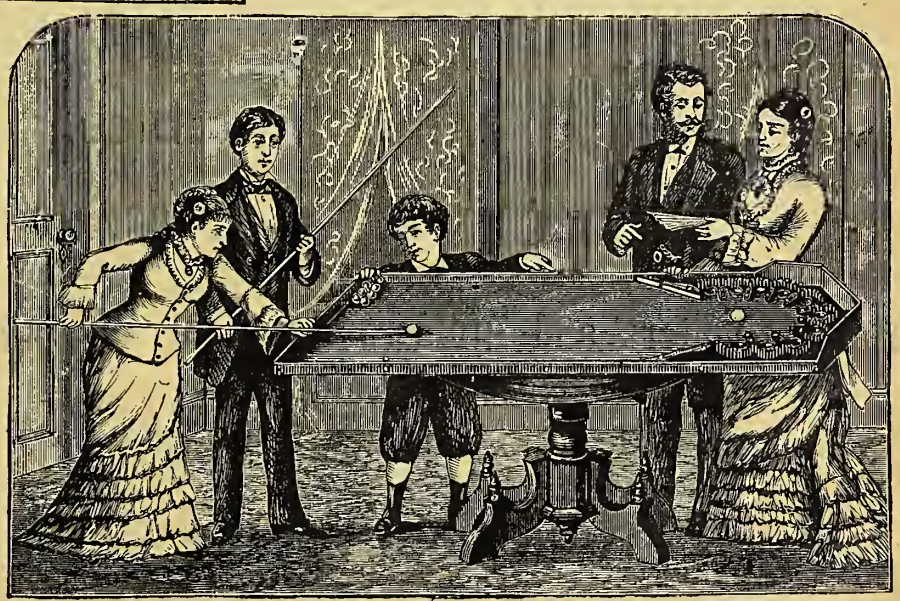

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# AMERICAN AGRICULTURIST.

FOR THE FARM, GARDEN, & HOUSEHOLD.

VOL. XXXVIII. NUMBER 10.

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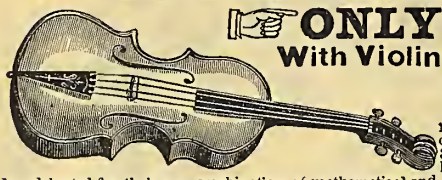

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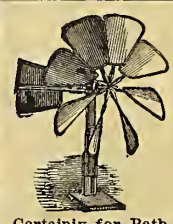

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## Calendar for October, 1879.

| Day of Month. | Day of Week. | *Boston, N. England, N. York State, Michigan, Wisconsin, Iowa, and Oregon.* Sun rises. | Sun sets. | Moon rises. | *N. Y. City, Ct., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois.* Sun rises. | Sun sets. | Moon rises. | *Washington, Maryland, Virginia, Kentucky, Missouri, and California.* Sun rises. | Sun sets. | Moon rises. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | H. M | H. M | H. M. | H. M | H. M | H. M. | H. M | H. M | H. M. |
| 1 | W | 5 57 | 5 42 | 5 52 | 5 57 | 5 43 | 5 56 | 5 56 | 5 43 | 6 0 |
| 2 | T | 5 58 | 5 40 | 6 19 | 5 58 | 5 41 | 6 24 | 5 57 | 5 42 | 6 29 |
| 3 | F | 6 0 | 5 39 | 6 51 | 5 59 | 5 39 | 6 56 | 5 58 | 5 40 | 7 2 |
| 4 | S | 6 1 | 5 37 | 7 28 | 6 0 | 5 38 | 7 34 | 5 59 | 5 39 | 7 41 |
| 5 | S | 6 2 | 5 35 | 8 11 | 6 1 | 5 36 | 8 18 | 6 0 | 5 37 | 8 25 |
| 6 | M | 6 3 | 5 33 | 9 2 | 6 2 | 5 34 | 9 9 | 6 1 | 5 35 | 9 16 |
| 7 | T | 6 4 | 5 32 | 10 0 | 6 3 | 5 33 | 10 6 | 6 2 | 5 34 | 10 13 |
| 8 | W | 6 5 | 5 30 | 11 3 | 6 4 | 5 31 | 11 9 | 6 3 | 5 33 | 11 14 |
| 9 | T | 6 6 | 5 28 | morn | 6 5 | 5 30 | morn | 6 4 | 5 31 | morn |
| 10 | F | 6 7 | 5 27 | 0 9 | 6 6 | 5 28 | 0 14 | 6 5 | 5 29 | 0 18 |
| 11 | S | 6 8 | 5 25 | 1 18 | 6 7 | 5 26 | 1 22 | 6 6 | 5 28 | 1 25 |
| 12 | S | 6 9 | 5 24 | 2 29 | 6 8 | 5 25 | 2 31 | 6 7 | 5 26 | 2 33 |
| 13 | M | 6 11 | 5 22 | 3 42 | 6 9 | 5 23 | 3 43 | 6 8 | 5 25 | 3 43 |
| 14 | T | 6 12 | 5 20 | 4 58 | 6 10 | 5 22 | 4 57 | 6 9 | 5 23 | 4 56 |
| 15 | W | 6 13 | 5 19 | sets | 6 12 | 5 20 | sets | 6 10 | 5 22 | sets |
| 16 | T | 6 14 | 5 17 | 5 33 | 6 13 | 5 19 | 5 38 | 6 11 | 5 21 | 5 43 |
| 17 | F | 6 16 | 5 15 | 6 17 | 6 14 | 5 17 | 6 23 | 6 12 | 5 19 | 6 30 |
| 18 | S | 6 17 | 5 14 | 7 11 | 6 15 | 5 16 | 7 19 | 6 13 | 5 18 | 7 25 |
| 19 | S | 6 18 | 5 12 | 8 14 | 6 16 | 5 14 | 8 21 | 6 14 | 5 16 | 8 28 |
| 20 | M | 6 20 | 5 11 | 9 24 | 6 17 | 5 13 | 9 30 | 6 15 | 5 15 | 9 37 |
| 21 | T | 6 20 | 5 9 | 10 35 | 6 18 | 5 11 | 10 40 | 6 16 | 5 14 | 10 46 |
| 22 | W | 6 21 | 5 8 | 11 46 | 6 19 | 5 10 | 11 50 | 6 17 | 5 12 | 11 51 |
| 23 | T | 6 23 | 5 6 | morn | 6 20 | 5 9 | morn | 6 18 | 5 11 | morn |
| 24 | F | 6 24 | 5 5 | 0 58 | 6 21 | 5 7 | 0 56 | 6 19 | 5 10 | 0 59 |
| 25 | S | 6 25 | 5 3 | 1 59 | 6 23 | 5 6 | 2 0 | 6 20 | 5 8 | 2 2 |
| 26 | S | 6 26 | 5 2 | 3 2 | 6 24 | 5 4 | 3 3 | 6 21 | 5 7 | 3 3 |
| 27 | M | 6 28 | 5 0 | 4 5 | 6 25 | 5 3 | 4 4 | 6 22 | 5 6 | 4 3 |
| 28 | T | 6 29 | 4 59 | 5 7 | 6 26 | 5 2 | 5 5 | 6 23 | 5 5 | 5 2 |
| 29 | W | 6 30 | 4 58 | rises | 6 27 | 5 0 | rises | 6 24 | 5 3 | rises |
| 30 | T | 6 31 | 4 56 | 4 52 | 6 28 | 4 59 | 4 58 | 6 25 | 5 2 | 5 3 |
| 31 | F | 6 33 | 4 55 | 5 27 | 6 30 | 4 58 | 5 34 | 6 26 | 5 1 | 5 40 |

PHASES OF THE MOON.

| MOON. | D. | BOSTON. H. M. | N. YORK. H. M. | WASH'N. H. M. | CHA'STON H. M. | CHICAGO. H. M. |
|---|---|---|---|---|---|---|
| 3d Quart. | 8 | 8 59 mo. | 8 47 mo. | 8 35 mo | 8 23 mo. | 7 53 mo. |
| New M'n | 15 | 10 25 mo. | 10 13 mo. | 10 1 mo | 9 49 mo. | 9 19 mo. |
| 1st Quart | 22 | 1 35 mo. | 1 23 mo. | 1 11 mo | 0 59 mo. | 0 29 mo. |
| Full M'n | 29 | 9 25 ev. | 9 13 ev. | 9 1 ev. | 8 49 ev. | 8 19 ev. |


# AMERICAN AGRICULTURIST.

NEW YORK, OCTOBER, 1879.


## Hints for the Work of the Month.

[*The Hints and Suggestions in these columns are never copied from previous years, but are freshly prepared for every month, from the latest experience and observations, by practical men in each department.*]

*Corn.*—Standing corn is injured by every day's delay in cutting. The fodder loses value by rain and frost, and the grain is apt to become damaged. One of the marks of a poor farmer—poor in both meanings of the word—is that his work is always behind; this means always loss of material, and therefore of money.

*Corn Husking.*—Corn is a crop that needs to be finally disposed of in the field. It cannot well be stored in stacks or barns as other grain, because the ears and husks cannot be dried perfectly. As delay in the field will not dry the ears thoroughly, there is no need to wait for the husking. Two weeks' exposure is sufficient to prepare the crop for husking, and in the pleasant October days, it may be husked with less inconvenience than later.

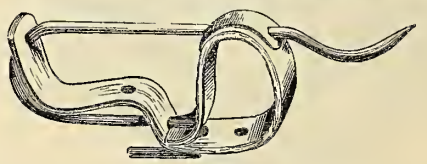
*A Saving of Labor* may be effected by taking the wagon to the field, and as a basket of corn is husked, throwing it into the box. Where the crop of corn is large, two wagons may be used, one to be loaded while the other is unloaded. This saves the labor of handling the corn a second time. A sufficient number of baskets should be provided for gathering the corn. Two wagons and a pair of horses, will keep 20 ordinary huskers employed, and two or three binders will be kept busy in following them.

*A good day's Husking.*—The quantity of corn that can be husked in a day, depends upon the yield of the crop. With 20 bushels per acre, and many barren stalks to go over, a man may husk 40 bushels in a day, or even more. With a yield of 60 to 80 bushels, a man can husk one acre in a day. An ear can be husked in four seconds. This is equal to 900 ears an hour, with good corn, equal to 60 or more bushels in 10 hours. In the West where large ears and good crops are grown, 100 bushels a day can sometimes be husked. This exemplifies the saving made in working quickly and steadily, and also one of the ways in which it pays to grow good crops.

*Comfort in Husking.*—To squat upon the ground while husking, is neither comfortable nor healthful. To carry about a seat, is a loss of time. A good plan is to have seats made of a piece of board, to which a short prop or leg is fastened, and which

may be tied around the body of the huskers, as shown in the engraving.

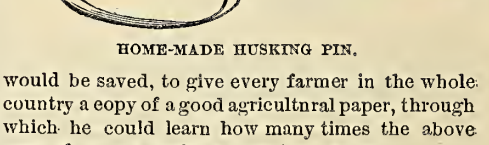
*A great number of Husking Appliances* are in use, or may be used. An excellent husking machine is made, which will husk as much as ten men. The



HUSKING PIN.

husking gloves made by Hall & Co., save the hands and wrists; and there are husking pins in great variety. One is made by a party in Decatur, Ill., and a home-made one is also shown, which is simply a large nail, or a hickory pin with a leather band.

*Corn Cribs.*—The loss caused by damage to corn by rats and mice, is very great. It is doubtless one per cent of the crop, and possibly four or five times as much. If but one per cent, it equals 12½ million bushels, or about 4 million dollars' worth each year. If every farm of 20 acres or over has a corn crib, there are about three million. To make every crib permanently rat proof, would not cost more than the amount of the annual loss, and enough money



HOME-MADE HUSKING PIN.

would be saved, to give every farmer in the whole country a copy of a good agricultural paper, through which he could learn how many times the above sum of money could be saved each year.

*Saving Corn Stalks.*—There is no necessity to make large stacks of stalks, as they keep better in small ones. Many farmers in the Eastern and Middle States, put them up in large shocks in the field, or a lot near the barn, binding them well, especially at the top, and the fodder keeps bright and green in this way. This is little trouble, and the plan might be followed elsewhere with profit.

*Corn Smut.*—There is no doubt of the hurtful character of corn smut, and cattle should be prevented from devouring stalks affected with it. Where the cattle are worth more than the labor of saving them, this may be done by throwing out smutty stalks by themselves, and burning them.

*Fertilizers for Wheat.*—Any fertilizers to be used for wheat, should be applied without delay. As good a growth as possible ought to be made before winter. Superphosphate of Lime; Nitrate of Soda, (in small quantities however at this season on account of its solubility), fine Bone-flour; Peruvian Guano; Salt and Plaster can each be used with benefit, according to circumstanees.

*A Farmer should know his own Farm.*—A farmer cannot work his farm safely, without knowing all about his soil. Every field should be studied as to the effects of certain methods with fertilizers upon it. Then the owner can act with reasonable cer-

tainty. The plan of experimenting with fertilizers, suggested heretofore in the *American Agriculturist*, is not one for a year only, but should be followed up in successive years, until the character of each field is known. This is the best season to experiment upon fall crops, and no time should be lost if it is to be done; a year will thus be saved.

*Root Crops.*—Mangels and beets are not hardy, and should be put away safely before severe frosts. In pitting these roots, it is well to remember that to prevent heating, they should be put into the pits when dry; the pits should not be too high or wide, but may be as long as desired, and a ventilator will be necessary at every 6 feet. It is safest to finish the pit at first, although the full coating of earth may not be put on until cold weather arrives.

*In Gathering late Potatoes,* all that are dug should be put away safely before night. At this season it will not be safe to leave this tender tuber exposed over night, as a slight frost may spoil many.

*Take Care of the Potato Tops.*—It is usual to let the pigs glean the potato fields. But now that Paris Green is generally used, the tops should be gathered and burned before the pigs are turned in. Long acquaintance with this deadly poison should not lead to carelessness with it. Neither is it safe to throw the tops into the yards where the pigs are kept.

*Horses.*—The season is too far advanced for turning horses out at night. A cold rain coming on suddenly, may do much harm. If horses are caught in the rain and thoroughly drenched, it will be well to rub them dry, and then blanket them as soon as they reach home. But the blankets should never be put on until the horses are thoroughly dry.

*Harness* that has been soaked with water, will dry hard, unless it is dressed while damp with some kind of non-drying oil. First wipe off the harness with a sponge, and then with a cloth kept for this purpose, you can apply the oil or dressing thoroughly. A coating of water-proof dressing given now will be useful, but the harness should be thoroughly washed and made perfectly clean.

*Economy.*—The value of every thing a farmer buys, will probably increase considerably before long, if the increase has not already begun. Whether agricultural products advance in value in proportion or not, a rigid economy in expenditures will be prudent. The experience of the past few years ought not to be soon forgotten. Every tool, implement, machine, or appliance about the premises should be used and preserved with care; and before anything is purchased, it may well be considered if it cannot be produced or made at home. Then the money may be doubly saved, for the needed article may be had without much cost, and the money it would have required will be still in the pocket.

*Cows.*—If any inducement was ever needed for skillful management of cows, the present low price of milk and dairy products would offer one. To increase the product in every possible way, is a vital necessity for dairymen. The best of feed, good water, frequent carding of the animals to preserve health, are all means towards this end. Now that pasturing is about over for the season, it will be well to look over the back volumes of the *American Agriculturist*, and study the articles on feeding animals. There are some feeding stuffs that are worth more than others at the same price. This is a point worth special study to all who have live-stock.

*Calves and Yearlings.*—Cold and wet do much harm to young stock and stop the growth, which is rarely commenced again until the warm weather of the next season. A rough shed in the pasture will furnish useful protection, and a small supply of rich food is of value in keeping up the thrift.

*Coarse Fodder,* hard and unnutritious, is the cause of much disease at this season. If there is no pasture available, but the woods or a swamp, the animals condemned to such hard fare, should get a moderate allowance of artificial food. A cheap nutritious and healthful food may be made by mixing 100 lbs. cotton-seed meal and 200 lbs. of wheat bran, ground with 100 lbs. of oats; add 2 lbs. of Epsom Salts and mix thoroughly. Two pounds a day of this mixture will be found of remarkable benefit when fed under the above circumstances.

*Sheep.*—Long-wool sheep are easily chilled by a cold rain that would not trouble a Southdown or Merino. Long-wools, therefore, require protection from rain-storms, although the weather may not be very cold. An open shed in the field may be sufficient. If brought into the yards at night, sheep should not be shut up; they require abundant ventilation, and can not be crowded with impunity in close quarters. Where ticks abound, or scab exists, use the Cresylic or other effective dip.

*Drains.*—Fields will need to be relieved of excess of surface water, but water furrows should be so arranged, that as much of the rain-fall as possible may be retained on the land. If water channels are made down a slope, soluble fertilizers and manure will be washed away. Make furrows diagonally across the slope, with very little fall, and make them broad and shallow, instead of deep and narrow.

*Sundry Matters.*—Every kind of litter and waste matters, except weeds in seed, may be gathered and spread in the yards. Abundant litter for the stables and pens will be valuable; straw is worth too much for feed, to be trodden under foot. If the straw and chaff, after threshing, are in the way, buy some thin steers, or take some cattle for feeding on shares; but give something besides the straw. A general cleaning up about the barns, stables, house, and garden, will give things a neat and comfortable appearance. A good arrangement for watering stock in winter may now be thought of. (See *American Agriculturist* for August). Poultry and other animals for fattening should be put up at once. Keep over only such fowls as are profitable. Clear all stock from vermin; Carbolic Soap may do for cows, calves, and pigs, and Carbolic Powder for poultry. Lastly, but by no means least, every farmer should provide himself with a pair of good rubber boots and a rubber coat to protect himself in storms, and preserve his health during the winter.

## Orchard and Garden Work.

The work of every cultivator of the soil is ever ending and ever beginning, and especially is this so in the Orchard and Garden. In nearly every month he can look backward to something accomplished, and forward to something to be done, and he who best applies the lessons of the past to the work of the future, is the most successful. Of our successes we take little heed, we accept them as something that ought to be, but we look upon our failures as not ours by right. In the retrospect of the present month, it will probably be found that the failures, the "bad luck" of the past season, whether in the orchard or garden, are due, in the majority of cases, to the lack of drainage. This, of course, is not the universal cause of disaster, but we feel sure that it is more general than any other one cause. Wherever this is the case, the remedy is obvious—to drain. As this is one of the best of all months for the operation, we can not better begin our "Hints for the Month" than to "hint" that it should be a leading work to ascertain if draining is needed, and if so, to begin the work at once, and, having begun it, to complete it.

### Orchard and Nursery.

The late fruits must be picked and packed, and either put upon the market or stored. Use great care at every step in handling the fruit. When the crop is abundant, the best only must be selected and sent to market in the *best* shape; and where the crop is light, still greater care is necessary to make the return as large as possible for the poor year.

*Apples.*—While many pick directly into the barrels, others put them in heaps for a few days, until the skin becomes toughened, before barrelling them. Make at least two grades. Put the fruit into the barrels carefully. Shake them down gently when the barrel is half full, and again when full; after which, put on enough to make them all fit closely together, when the head is pressed down by means of a lever or a portable barrelling press. No fruit should stir in the package when it is being moved. Mark the opposite head as the one to be opened. The apples which have been rejected as small, badly shaped, etc., may be dried or made into

*Cider.*—Cider-mills or presses are now made of all sizes, and one can get one of great power for a moderate outlay. The best cider is only made from good, late-ripening, sound fruit. A reputation for neatness, will greatly help the sale of such articles as cider. The best cider can only be made when the fermentation is very gradual; hence, cool weather should be chosen for making it, which in most localities does not come until next month. But many early apples may be worked up into sweet cider, if there is a demand for it, or be preserved in a cool and convenient place for making

*Vinegar.*—For this, it makes no difference how rapid the fermentation takes place. A large amount of fruit unfit for market, may be saved and turned to the best account by making it into vinegar.

*Pomace* from the cider press is not of much value as fodder, and is but little desired by domestic animals. It may be given to the pigs in small quantities. If left in a heap, it gives off a bad odor; the best way is to put it *in* the manure heap.

*Quinces* should be handled with care. They are generally sold by the hundred, and they should be counted when put in the packages, and the number marked on the outside.

*Fruit Cellars* should be provided with ventirators so arranged that they can easily be thrown open. It is best to leave the fruit in open sheds until cold weather comes, being careful that it is removed to the cellar before being exposed to severe cold.

*Winter Pears.*—When for market, pack them in half barrels, with great care. The very choicest specimens may be rolled in tissue paper and sent to market in shallow boxes, holding a single layer.

*Heeling-In.*—As a general rule, it is best for the orchardist to get his trees in the fall and heel them in, especially if at a considerable distance from the nurseries. When procured in the spring, they are generally removed in a hurry, and the roots much injured. Heeling-in, when properly done, consists in burying the roots in a place where they will keep in good order until the time for setting. A trench is dug, and the roots put in with the stems in a slanting position, as in this way they are less injured by the wind. The soil should be fine and filled in closely about the roots. Look well to the labels. Leave no litter, etc., near the trenches to harbor

*Mice.*—Young trees, and sometimes older ones, are injured, if not killed, by mice. A mound of earth around newly planted trees, a foot or so in hight, will be a protection, and also stay the tree against hard winds. As stated above, no litter for mouse "nests" should be left in the orchard.

### The Fruit Garden.

Those who have heretofore grown their small fruits in the kitchen garden, are advised, if land can be spared—and all farmers can do so—to have a separate plot for small fruits. The advantages are many; and a single one—the fact that the fruits are not in the way of the necessary rotation in the kitchen garden—should be sufficient to induce the adoption of the method. Now is a good time to begin. A plot of good, strong, well-drained soil should be chosen. A sufficient fence should be put up, and the ground, if in sod, well manured and plowed, and left rough until the coming spring.

*Strawberries.*—We are often asked whether it is better to plant in fall or in spring. There is no gain in the time of fruiting by planting now. Plants must grow one season before a crop can be expected. This does not apply to pot-grown plants. If planting is done now, the work is pleasanter, the soil in good condition, and the job will be out of the way in the hurry of spring. Plant any time before frosts, and when the ground begins to freeze, cover the beds with litter, putting it but slightly over the plants themselves. When there is room, set the plants a foot apart in the rows, which should be wide enough apart to allow of a narrow cultivator to run between. If to be worked by hand, 15 inches will be far enough between the rows. For Notes on the newer varieties, see last month. A few years ago, we stated that if obliged to select one berry for the family garden for all

soils and localities, it would be Charles Downing—and we have not changed our opinion in the least.

*Blackberries.*—It is best to set them in the fall, placing them 6 by 8 feet apart. Kittatinny is best for general use. Snyder is coming into favor.

*Raspberries* should also be set in the fall, where it can be done, putting them about 4 by 4 feet. See article on varieties on page 388 of this number.

*Grapes.*—In picking for market, use the Grape-shears, which allow the bunch to be picked without handling to deface the bloom. Tender-skinned Grapes, like Concord, will keep but a short time; Delaware will keep somewhat longer; Catawba, Isabella, Iona, Diana, and other tough-skinned varieties, may be kept until after the holidays. They must be well ripened, picked in a dry time in shallow trays, and left in a cool, dry room for a few days, or until the skin becomes tough. Pack in 3-lb. or 5-lb. boxes, putting in the fruit from the bottom, putting on the cover (the *bottom*) with slight pressure, and tacking fast. Label the other side, which will be the one to open. Fruit thus packed must be kept dry and cool. Prune the vines as soon as the leaves have fallen away.

## Kitchen and Market Garden.

Caring for the crops that are to be stored, and preparing for early spring crops, will be the principal work. Clean up all rubbish, and wherever a plot can be manured and plowed, it should be done.

*Cold Frames.*—These should be ready for the plants of early Cabbage, Lettuce, etc. They can be made of rough boards, the rear part to be one foot high, front 8 inches, and nailed to posts set in the ground, so that the width of the frame shall be equal to the length of the sashes. The frames should be in a sheltered place, and face the south. The object of the cold frame is not to grow plants—as some think—but to protect those that would otherwise be killed by the frequent changes of weather. The sashes should not be put on until required. In the South, *ridges* of earth a foot or more in hight, running east and west, are thrown up, upon the south side of which plants are set, and are covered with straw, if the latitude demands it. These ridges are for the same purpose as, and take the place of, cold frames in colder regions.

*Roots.*—Beets and Carrots are injured by freezing; Parsnips and Salsify improve. Dig the former as soon as growth stops. A moderate supply for table use should be packed, with dry earth, in boxes or barrels, and stored in the cellar; all others should go into a root cellar or into pits. It is objectionable to have a large quantity of roots or fruits in the cellar, as foul gases are constantly rising through the house, and making the air impure.

*Pits* should be in a dry place. The most convenient form is that of a square trench, 3 or 4 feet deep, and 6 feet wide, in which the roots are in clusters of a few bushels, separated by a wall of 6 inches or so of earth. In this way a portion of the roots can be removed without disturbing the rest.

*Asparagus.*—Cut and burn the tops, and apply a heavy dressing of coarse manure to the bed.

*Beans.*—The Limas should be lifted, poles and all, at the first frost, and placed under a shed, where they will remain fresh for some time. Gather and shell the ripe ones for winter use.

*Beets.*—Heavy frosts injure these. Dig in time, and store in pits. Feed the tops to the cows.

*Cabbages.*—Gather before the ground freezes, and store in a trench or pit, as shown on page 384, or merely set the heads on a place where water does not stand, *roots up*, and cover the heads with a few inches of earth. Partly headed cabbages, if set out in a trench, close together, and covered with boards and when very cold, with litter, will head up during the winter, and be excellent by spring.

*Carrots.*—Dig and store as directed under "Roots." For feeding to stock, put in root cellar or pits.

*Celery.*—For early use, bank up to the top. The earth should be fine, and drawn up carefully, holding the leaves closely in a bunch, so that none gets between the stalks. For late use, bank up gradually, letting the plant grow as long as possible.

*Lettuce.*—Sow in cold frame for wintering over.

*Onions.*—Sowing in the fall is practised by some. The young plants must be covered with litter, to keep the frost from heaving them out of the ground.

*Parsnips.*—Dig enough for early winter use, and store as with Carrots, etc. During the "January thaw" dig for later use. The frost sweetens the roots and makes them tender.

*Rhubarb.*—This is a good time to set a new bed. Divide the old roots, to have a bud with each piece, and plant at least 4 by 4 feet, manuring heavily.

*Spinach*, in warm localities, may still be sown for spring use. Keep that sown last month well cultivated until the ground freezes. It is safe to cover slightly with bog hay or straw north of N Y. City

*Squashes* should be gathered before the frosts touch them, and left in heaps covered with the vines for a few days, then store them in a dry place, where they will not freeze. Handle carefully.

*Sweet Potatoes.*—Dig as soon as the first frost comes, and store in a dry and warm place. The roots should not be bruised. A dry temperature not less than 60° is required to keep them well.

*Tomatoes.*—The season may be prolonged by protecting a few plants during the early frosts by cloths, or even papers. Make Catsup while the fruit is at its best. Green ones can be pickled.

*Weeds.*—Gather and burn, to destroy all the seed.

## Flower Garden and Lawn.

During this month the tender plants, like the Coleus, must suffer, if not be entirely killed, while the more hardy Geraniums and Chrysanthemums may pass all the early frosts uninjured. With some care in protecting the more tender plants, this may be the attractive month in the flower garden.

*Chrysanthemums* that are to flower in the house should be taken up at once. Those that remain in the beds must be kept tied up to stakes.

*Dahlias* are spoiled by the first hard frost. The tops should be cut away at once, and the roots dug on a warm day, and left to dry in the sun for a few hours, after which they should be properly labelled and put away in a dry cellar for the winter.

*Cannas.*—The roots ought to be dug before the plants are killed by the frost; it is better to lose a little of their beauty than to have the roots killed. The roots should not be allowed to wither before putting them in a dry and warm place for the winter.

*Gladiolus* and other tender bulbs are to be treated as mentioned under *Cannas.*

*Spring Blooming Bulbs* are to be planted now, in a bed prepared for them by enriching with old manure.

*Straw* and *Leaves* should be used to cover any plants of doubtful hardiness. In raking up leaves there is a double advantage—the stock of useful leaves, and clean grounds.

*Walks.*—This is a good time to make walks. Dig out 2 feet of earth, and fill in with stones to 6 inches of top, and finish first with coarse and then fine gravel upon the surface. Water and roll thoroughly.

## Greenhouse and Window Plants.

The Greenhouse should be in perfect readiness: benches, sash, heating apparatus, and everything, that there may be no delay in bringing in the plants when the time comes....Supplies should be on hand, and in sufficient quantity; soil, labels, moss, and all other articles, should be within reach.... Seeds of Annuals, like Candy-tuft, Mignonette, etc., may be sown, as the flowers are always in demand in winter....Window plants should be taken to an open room without a fire, and by degrees accustomed to the air and temperature of a living room....Hanging-Baskets should be made up with new plants, well watered, and kept in the shade for a few days. Do not place them in the confined air of the house until it is too cool outside, and then give them fresh air as often as possible.....Pot Hyacinths, Tulips and other bulbs for winter blooming. Success depends upon having them well rooted before the growth of leaves and stem begins. Pot in sandy rich soil, and set the pots in a cool dark cellar, watering when needed; when the pots are well filled, bring to the light and heat, and they will come on rapidly.

## Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, from our record kept daily during the year, show at a glance the transactions *for the month ending Sept. 11th*, 1879, and for the corresponding period last year:

1. TRANSACTIONS AT THE NEW YORK MARKETS.

| RECEIPTS. | *Flour.* | *Wheat.* | *Corn.* | *Rye.* | *Barley.* | *Oats* |
|---|---|---|---|---|---|---|
| 27 d's *this* m'th | 426,500 | 6,268,000 | 4,209,000 | 489,000 | 206,000 | 1,287,000 |
| 27 d's *last* m'th | 402,000 | 3,696,000 | 4,931,000 | 313,000 | 315,000 | 1,293,000 |
| SALES. | *Flour.* | *Wheat.* | *Corn.* | *Rye.* | *Barley.* | *Oats* |
| 27 d's *this* m'h | 485,000 | 19,130,000* | 7,724,000* | 601,000 | 14,000 | 1,835,000 |
| 27 d's *last* m'h | 461,000 | 9,384,000* | 8,116,000* | 456,000 | —— | 1,451,000 |

* Including sales for forward delivery.

CURRENT WHOLESALE PRICES.

| | Aug. 11. | Sept. 15. |
|---|---|---|
| FLOUR—Super to Extra State | $3 30 @ 4 75 | $4 00 @ 5 00 |
| " Super to Extra South'n. | 3 30 @ 6 75 | 4 00 @ 6 75 |
| " Extra Genesee | 4 75 @ 6 25 | 5 00 @ 6 25 |
| " Superfine Western | 3 30 @ 4 15 | 4 00 @ 4 50 |
| " Extra Western | 4 25 @ 8 75 | 4 50 @ 8 50 |
| " " Minnesota | 4 25 @ 8 00 | 4 50 @ 8 00 |
| RYE FLOUR, Superfine | 3 10 @ 3 90 | 3 25 @ 4 00 |
| CORN-MEAL | 2 10 @ 2 75 | 2 15 @ 2 75 |
| OAT MEAL, ℔ bbl | 2 75 @ 6 00 | 3 50 @ 6 25 |
| WHEAT—All kinds of White | 1 00 @ 1 15 | 1 00 @ 1 17 |
| " Red and Amber | 90 @ 1 09½ | 98 @ 1 16 |
| " Spring | 75 @ 1 03 | 80 @ 1 10 |
| CORN—Yellow | 46 @ 56 | 49 @ 59 |
| " White | 47 @ 55 | 49 @ 58 |
| " Mixed | 44 @ 46½ | 48 @ 49 |
| OATS | 32 @ 41 | 32 @ 40 |
| RYE | 63 @ 68 | 66 @ 70 |
| BARLEY | Nominal. | 80 @ 1 15 |
| HAY—Bale, ℔ 100 lbs | 45 @ 85 | 45 @ 85 |
| STRAW, ℔ 100 lbs | 35 @ 65 | 35 @ 65 |
| COTTON—Middlings, ℔ lb | 11⅛ @ 11⅜ | 12⅜ @ 12½ |
| HOPS—Crop of 1879, ℔ lb | — @ — | 28 @ 36 |
| " " 1878, ℔ lb | 8 @ 18 | 7 @ 18 |
| " olds, ℔ lb | 2 @ 3 | 3 @ 10 |
| FEATHERS—Live Geese, ℔ lb | 35 @ 47 | 35 @ 47½ |
| SEED—Clover, West. & St. ℔ lb | Nominal. | 6¾ @ 8 |
| " Timothy, ℔ bushel | Nominal. | 2 50 @ — |
| " Flax, ℔ bushel | 1 37½ @ 1 42½ | 1 35 @ 1 40 |
| TOBACCO, Kentucky, &c., ℔ lb | 2½ @ 12 | 2½ @ 12 |
| " Seed Leaf, ℔ lb | 5 @ 40 | 5 @ 40 |
| WOOL—Domestic Fleece, ℔ lb | 18 @ 40 | 20 @ 42 |
| " Domestic, pulled, ℔ lb | 17 @ 37 | 18 @ 38 |
| " California | 10 @ 25 | 15 @ 30 |
| TALLOW, ℔ lb | 5¾ @ 5⅞ | 5⅞ @ 5⅞ |
| OIL-CAKE—℔ ton | 28 00 @ — | 27 00 @ 27 50 |
| PORK—Mess, ℔ barrel | 8 75 @ 9 20 | 9 00 @ 9 20 |
| " Extra Prime, ℔ barrel | 8 25 @ 8 50 | 8 25 @ 8 50 |
| BEEF—Extra mess | 10 50 @ 11 50 | 11 50 @ 12 60 |
| LARD, in tres. & bbls, ℔ 100 lb | 5 70 @ 6 20 | 6 07½ @ 6 55 |
| BUTTER—State, ℔ lb | 5 @ 17½ | 6 @ 21 |
| " Western, poor to f'cy, lb | 5 @ 17½ | 6 @ 19 |
| CHEESE | 2 @ 5½ | 3 @ 7¾ |
| EGGS—Fresh, ℔ dozen | 9 @ 13½ | 12 @ 17 |
| POULTRY—Fowls, ℔ lb | 9 @ 13 | 9 @ 15 |
| " Chickens, ℔ lb | 12 @ 17 | 9 @ 17 |
| " Roosters, ℔ lb | 5 @ 8 | 5 @ 7 |
| Turkeys—℔ lb | 13 @ 17 | 11 @ 15 |
| Geese, ℔ pair | 1 12 @ 2 00 | 1 00 @ 2 00 |
| Ducks, ℔ pair | 45 @ 60 | 40 @ 60 |
| " ℔ lb | — @ — | 10 @ 12½ |
| Capons, ℔ lb | 20 @ 25 | 18 @ 25 |
| WOODCOCK, ℔ pair | 60 @ 75 | 75 @ 70 |
| PARTRIDGE, ℔ pair | — @ — | 90 @ 1 25 |
| SNIPE, per doz | — @ — | 60 @ 2 00 |
| PIGEONS, ℔ doz | 25 @ 1 75 | 75 @ 1 75 |
| GROUSE, ℔ pair | — @ — | 87½ @ 1 00 |
| APPLES, ℔ barrel | 1 00 @ 3 00 | 75 @ 2 25 |
| PEARS, ℔ bbl | 1 50 @ 3 50 | 1 00 @ 4 00 |
| " ℔ crate | 1 25 @ 2 75 | — @ — |
| GRAPES, ℔ lb | — @ — | 2 @ 9 |
| " ℔ case | — @ — | 3 00 @ 3 50 |
| WHORTLEBERRIES, ℔ box | — @ — | 75 @ — |
| PEACHES, ℔ half bush. crate | 75 @ 1 25 | 35 @ 75 |
| " ℔ basket | 20 @ 1 00 | 35 @ 1 25 |
| PLUMS, ℔ bbl | — @ — | 3 00 @ 8 00 |
| POTATOES, ℔ bbl | 75 @ 1 75 | 1 00 @ 1 25 |
| " Sweet, ℔ bbl | 3 00 @ 4 00 | 1 50 @ 2 75 |
| TURNIPS ℔ bbl | 75 @ 1 00 | 75 @ 1 00 |
| TOMATOES, ℔ box | 50 @ 75 | 15 @ 25 |
| BEANS—℔ bushel | 1 15 @ 2 50 | 1 20 @ 2 00 |
| PEAS—Canada, in bond, ℔ bu | 70 @ — | 70 @ — |
| " new, green, ℔ bag | 1 25 @ 1 75 | 1 25 @ 2 00 |
| CORN, GREEN ℔ 100 | — @ — | 25 @ 1 00 |
| LIMA BEANS, ℔ bag | — @ — | 1 00 @ 1 50 |
| STRING BEANS, ℔ bag | 75 @ 1 50 | 50 @ 1 00 |
| BROOM-CORN | 2½ @ 6½ | 2½ @ 6½ |
| CARROTS, ℔ 100 bunches | 1 00 @ 2 00 | 75 @ 1 50 |
| BEETS, new, ℔ 100 bunches | 1 25 @ 2 00 | 1 00 @ 1 75 |
| CABBAGES—℔ 100 | 2 00 @ 6 00 | 1 50 @ 4 50 |
| CAULIFLOWER, ℔ doz | 1 00 @ 4 00 | 1 00 @ 5 00 |
| ONIONS—℔ bbl | 2 50 @ 3 25 | 1 25 @ 2 50 |
| SQUASH, ℔ bbl | 50 @ 75 | 60 @ 75 |
| " striped, per doz | — @ — | 1 00 @ 1 50 |
| CUCUMBERS, ℔ 100 | 25 @ 50 | 30 @ 1 12 |
| WATERMELONS, ℔ 100 | 5 00 @ 25 00 | 3 00 @ 15 00 |
| MUSKMELONS, ℔ bbl | 50 @ 2 00 | 20 @ 1 25 |
| EGG PLANTS, ℔ bbl | 1 50 @ 2 00 | 50 @ 1 25 |
| OKRA, ℔ 100 | 12 @ 18 | 10 @ 15 |

Breadstuff movements have been on a grand scale since our last, especially in Wheat and Corn, which have been very freely dealt in, largely for export and on speculative account, leading to decided buoyancy in values, with reports of frequent changes. Winter Wheat has been unusually brisk, at materially advanced prices, but closing rather under the highest figures of the month. Red Wheat constituted the prominent feature in the transactions, having been—of the winter grades—in most liberal supply. White and Amber grades have been offered with reserve, and wanted, chiefly by shippers. Spring Wheat has been fairly active, closing at a notable improvement. Considerable sales of new crop Spring are reported, mainly forward delivery. A brisk trade has been noted in Corn, which has advanced sharply, and closed firmly. White Corn has been very s arce. Rye and Oats have attracted more attention, and left off with an upward tendency. Barley has not yet been in much request, and buyers and sellers, even for forward delivery, have been wide apart in their views. Flour has been in good request, at stronger prices ....In the Provision line, business has been fairly active, with Hog Products ruling firmer; Beef also steadier; Cheese decidedly higher, advancing within the past week, on the finest makes, fully 2 cts. per lb.; and Butter, likewise, somewhat

dearer....Cotton has been in more demand, at buoyant prices, closing irregularly....Hops have been moderately active, new crops attracting a fair share of attention, within our range....Wool has been favoring sellers, who have not been urgent in their offerings of domestic product, with an active inquiry noted....Tobacco in fair request at steady figures... Naval Stores and Petroleum rather more sought after, and the latter qu ted firmer, but leaving off heavily....Seeds in more demand, but variable in price....Hay and Straw firm and wanted... Ocean Freights have declined, on a less urgent inquiry from nearly all sources for accommodation. The main call has been from the grain trade, and largely for the Continent.

### New York Live-Stock Markets.

RECEIPTS.

| WEEK ENDING | *Beeves.* | *Cows.* | *Calves.* | *Sheep.* | *Swine.* |
|---|---|---|---|---|---|
| Aug. 18 | 12,839 | 290 | 4,949 | 38,734 | 18,129 |
| Aug. 25 | 12,304 | 198 | 4,427 | 30,775 | 28,942 |
| Sept. 1 | 13,034 | 230 | 4,191 | 36,668 | 26,708 |
| Sept. 8 | 11,181 | 147 | 3,822 | 35,352 | 23,873 |
| *Total for* 4 *Weeks* | 59,358 | 865 | 17,389 | 141,529 | 97,652 |
| do. *for prev.* 5 *Weeks* | 64,111 | 891 | 22,058 | 164,735 | 96,757 |

| | *Beeves.* | *Cows.* | *Calves.* | *Sheep.* | *Swine.* |
|---|---|---|---|---|---|
| *Average per Week* | 14,839 | 216 | 4,317 | 35,382 | 24,413 |
| do. do. *last Month* | 12,822 | 178 | 4,411 | 32,947 | 19,351 |
| do. do. *prev's Month* | 11,412 | 72 | 4,712 | 35,741 | 27,347 |

The prices for the past four weeks were as follows:

| WEEK ENDING | *Range.* | *Larger Sales.* | *Aver.* |
|---|---|---|---|
| Aug. 18 | 7 @10½c. | 8½@ 9½c. | 9 c. |
| Aug. 25 | 6¾@10½c. | 8¼@ 9½c. | 9 c. |
| Sept. 1 | 6½@10¾c. | 8¼@ 9¼c. | 8¾c. |
| Sept. 8 | 6¼@10½c. | 7¾@ 9½c. | 8¾c. |

**Beeves.**—The export trade in cattle and meat is now so much of a settled business, that it goes on without calling for notice; yet it is worthy of note that one week the past month, the shipments reached over 2,000 head of live cattle, 3,140 quarters of beef, 1,619 live sheep, and 607 carcasses of mutton. These enormous shipments are not without an effect on the home market. The market has been dull, and after considerable fluctuation, finally settled down at a reduction of ¼c. per lb., with a tendency still downwards. The dressed meat market has given way, and live stock felt the effect seriously. At the close of our report, the sales failed to clear the yards, and a depressed feeling was general among sellers. Closing prices were: 6½ @ 7c. per lb. for rough stock of 500 lbs. to the 100; 7½ @ 10c. per lb. for common to good natives of 55 to 56 lbs. to the 100 lbs.; and 10¼ @ 10¾ c. for extra 57 lb. cattle.... **Cows.**—The demand for cows has been dull, and prices low; $20 to $30 has been paid for common cows, and $50 for the best....**Calves.**—A dull market has ruled the month, but prices have not given way, and also without change at 2½ @ 3c. per lb. for buttermilk calves, 4 @ 5¾ for choice veals, and 6 @ 6½c. per lb. for extra calves, live weight.....**Sheep.**—Business has been steady and prices well sustained until the close, when stock became hard to work off, especially lambs. Butcher's sheep sold at 3½ @ 4½c. per lb. live weight, and shipping sheep at 4¾ @ 5½c. per lb. Poor to prime lambs brought 4¼ @ 5½c. per lb., and choice, 5½ @ 5¾c. per lb....**Swine.**—The market has been firm, with an upward tendency. Closing prices were 3⅝ @ 4c. per lb. for live; no dressed on sale for the past two weeks.

**Horse Market.**—The market for horses has had nothing worthy of note. There has been some inquiry but no sales. The foreign business has been without movement, and in England and France, prices are lower and the demand dull. A few shipments have been made of work-horses, and a noted racer and two noted stallions, one a coach-horse, and the other, a heavy work-horse of 2000 lbs. weight, have been imported to go to Michigan. The outlook for a largely increased foreign business is very bright, and the promise of profitable rearing of large and good horses by American farmers, to supply the demand, is very apparent.

### Prices of Feed.

| | |
|---|---|
| Bran, per ton | $16.00@$18.00 |
| Middlings, per ton | 19.00@ 20.00 |
| Ground Feed, per ton | 21.00@ 23.00 |
| Linseed-oil-cake, per ton | 35.00@ 40.00 |
| Cotton-seed-meal, per ton | 26.00@ — |
| Chandler's Scraps, per lb | 2@ 3 |

### Prices of Fertilizers.

| | |
|---|---|
| Nitrate of Potash (95 per cent.), per lb. | 9 @9½c. |
| Sulphate of Potash (potash 44 per cent) per lb. | 3 @3¼c. |
| do. do. (potash 27½ per cent) per lb. | 1½@1¾c. |
| German Potash Salts (potash 12 to 15 p. c. p. ton. | $15.00@18.00 |
| Muriate of Potash (potash 50 per cent), per lb. | 2 @2¼c. |
| Nitrate of Soda, per lb. | 4c.@4¼c. |
| Sulphate of Ammonia (25 per cent.), per lb. | 4c.@4¼c. |
| Dried Blood (ammonia 13 per cent) per ton | $40.00@45.00 |
| No. 1. Peruv. Guano 10 p. ct. ammonia, standard, ℔ ton | $56.50 |
| do. do. Lobos, do. do, do. | 47 50 |
| do. do. guaranteed, ℔ ton, cargo K | 56.00 |
| do. do. rectified, per ton, 9.00 p. c., | 65.00 |
| do. do. do. do. 3.40 p. c. | 51.00 |
| Soluble Pacific Guano, ℔ ton | 45.00 |
| Excelsior Fertilizer Works, Fine Ground Raw Bone, | 55.00 |
| Mapes' Complete Manure (clay soils) per 1,000 lbs. | 25.00 |
| do. do. do. (light soils) per 1,000 lbs. | 25.00 |
| do. do. do. "A" Brand, (wheat) ℔ 1,000 lbs. | 20.00 |
| do. Bone, strictly pure, meal .....per ton. | 42.00 |
| do. do. do. medium...... do. | 36.00 |
| do. do. do. dissolved..... do. | 42.00 |
| do. Fruit and Vine Manure........... do. | 35.00 |
| Stockbridge Rye Manure, per ton | 45.00 |
| " Wheat do do | 45.00 |
| " Seeding Down Manure. per ton | 40.00 |
| " Turnip Manure, per ton | 50.00 |
| Bowker's Wheat Phosphate, per ton. | 40.00 |
| Baugh's Raw Bone Phosphate, per ton | 33.00 |
| Baugh's Manure for Tobacco and Grain, per ton.. | 45.00 |
| Walton, Whann & Co.'s Raw Bone Phosphate.... | 40.00 |
| Gypsum, Nova Scotia, ground, per ton | 8.00 |

## Why Premiums are Offered.

THE "THEORY" OF IT.

This is very simple. In most departments of business, publishing included, it is customary to employ agents to carry on and extend the business at different points, and to pay them by salary or commission. This Journal circulates so extensively, and the profits on individual subscriptions are so small, that a system of agencies is impracticable, though it is convenient to most subscribers themselves, as well as to the publishers, to have some one or more, in each locality who will receive and forward subscriptions, and solicit new names. On this account, the Publishers invite everybody so disposed, to act as voluntary agents in gathering and forwarding the subscriptions of both old and *new* readers. As a return for such friendly aid, they have annually, for over 20 years past, offered a list of good Premium Articles, Books, etc.,—not to add to the value or attractiveness of the Journal itself, which is good enough and offered low enough, but as rewards or remuneration to those who voluntarily give any time or attention to promoting its interests or circulation. These premium articles are *just as good as money*, for use, or for sale even, while by special facilities, by large cash and wholesale purchases, by advertising arrangements, etc., the Publishers are able to offer in these articles *much higher rewards* than could possibly be given in money.

## Larger than Ever.—This Year

the collection of Premium Articles is *much larger, more varied,* and *more valuable* than ever before, and they are also offered on *much more liberal terms.* There will be something of interest, and something to be *readily obtained* by

## Every Subscriber (Old or New)

by simply inviting one or more friends or neighbors to unite with him in becoming a subscriber to this Journal. Our older subscribers can well judge whether those thus invited or induced to become readers will be benefited thereby.

Those not caring to secure any article *as a premium* can share in the general premium benefits, as explained on page 410, in last column. *We respectfully*

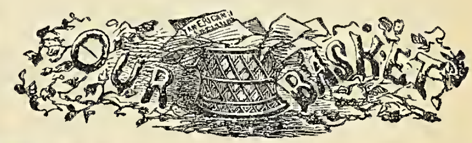
## Invite all our Present Readers,

*and any others who may chance to see this,* to carefully examine pages 409 and 410, also the Book offers on page 412, believing that they will each find something of interest. They will, of course, enjoy looking over the illustrations and descriptions on pages **411 to 440**, as there are many *new* and *most desirable* things,—some of them never before brought before the general public.

## A Long Year.----See This.

### Advantage in Subscribing NOW.

Every *new* subscriber coming this month (October) will be entered at once for 1880, and receive the numbers for November and December *without extra charge.* This applies to ALL new subscribers, whether single, in Premium lists, or otherwise. So there will be a gain in being enrolled *at once* for 1880. (Those arriving in November, will receive the paper free for December.)




*containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of room elsewhere.*

**A Capital Time to get Books very Easily.**—An old adage well says that the evil one always finds employment for idle hands. The same is equally true as to idle brains. A few *good* books in a house will save many a child from a worthless, if not a disastrous life, and make him an intelligent, thinking, useful citizen. Then, reading and thinking pays every worker, *in every calling.* Reading the thoughts of others, awakens new thoughts and plans in the reader's own mind. *Every farming community,* however small, *ought* not only to have a Circulating Library of General Books, but especially one of Books on Farming, Gardening, Animals and their treatment, on various crops, etc. Even a few books thus going from hand to hand, will do a world of good. To help in this direction, our Publishers have gathered a choice collection of books, as described on pages 412 to 415, and arranged to supply them on specially favorable terms. It will be an easy matter for one, or for a few to unite, and gather ten or more subscriptions, and thus not only all have this Journal from now to the end of 1880, but also secure Ten Dollar's worth of Books, and as many more dollar's worth as there are additional members of the club. It is certainly worth looking into.

**The German Edition.**—All the principal articles and engravings that appear in the *American Agriculturist* are reproduced in the German Edition. Besides these, there is a special department, edited by an eminent German cultivator. Our friends can do us a good service by calling the attention of their German neighbors and friends to the fact that they can have the paper in their own language, and those who employ Germans will find this Journal a most useful and acceptable present.

# An Interesting Supplement.

The usual October descriptions and illustrations of a considerable variety of useful and desirable articles for the Farm, Garden, and Household, is greatly enlarged this year. Our readers will find in this department (pages 407 to 446) a good deal of interesting information, and the answers to a multitude of queries in regard to what to select for their own use, and for Holiday and other presents. On account of the large number of extra pages required, and the difficulty of enclosing them in the ordinary cover, we have put them in a separate Supplement Cover, though these pages constitute an important part of the present number, and should be preserved for binding with it for future reference.

## Figures That Make Glad.

While travelling some 6,000 miles through the great West, during June, July, and August, and seeing the millions of acres of ripening wheat, which, with the increased area, indicated much more than an average yield, and the corn crop so vast and promising beyond anything we had ever witnessed in many previous journeys, this mental query very often arose: If this wheat is all gathered safely, and these wonderful corn-fields escape early autumnal frosts, what will we do with it all? Well, this is September 17th, and the wheat was mainly gathered in good condition, and now the corn crop is safe except in a few most northern localities—entirely safe in the great corn-growing regions. What we will do with it, is being daily answered. On Saturday last, six great Steamships sailed for Europe, loaded down with the products of our fields, and hundreds of steamers and sailing vessels have gone before, and will continue to go for many weeks to come.

The "London Economist," figures up that England alone will need to buy **146,000,000** bushels of wheat from abroad this year. France is in the market for **50,000,000** bushels more. The other grain-producing countries have less surplus than usual, and a large proportion of the requirements of both Great Britain and France will necessarily be drawn from our country. The receipts of grain at the four Ports of New York, Boston, Philadelphia, and Baltimore, this year, up to September 10th, were 166,453, 554 bushels, against 146 267,408 bushels for the same time last year, an increase this year of **20,186,146** bushels. Every conveyance, from the West to the seaboard, is actively employed, and will be for some time to come.

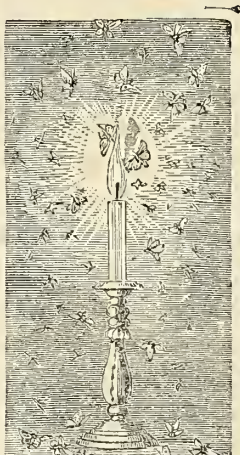
Already **$30,000,000** of gold have been sent here from Europe; and not less than $25,000,000 of currency have gone from New York, West, to "move the crops," in addition to the funds already there, and the exchange used for this purpose. The foreign gold has replaced the currency thus sent away, and supplied the wants of New York business men. The unusual demand for food abroad, will draw more largely than ever before upon our corn crop, taking away a good deal of what would otherwise be an unwieldy, unconsumable surplus. Vast sums more of foreign gold will yet be shipped here.

The great excess of exports over imports during two years past have so largely cancelled our foreign indebtedness, and repurchased our bonds previously sold abroad, that with our improved credit, few more of these bonds will be sent home, and gold must continue to come to pay for our products. Our exports so far this year are still largely in excess of our imports. Not in many years has business in this, and in most other cities and towns been so active as now. Thousands of manufactories that have either lain idle or been doing but little, are now in active operation. In short, look where we will, there is activity, cheerfulness, and well-founded hopefulness. The great Dairy interest has almost alone suffered through over-production and consequent unprecedentedly low prices. But as hinted in the Editorial Correspondence elsewhere, this will not long continue thus. General prosperity, such as our country has already entered upon, will ere long extend to every nook and corner of the land, and reach every department of industry. By another month we expect to be able to give figures that will prepare us, as a people, to join in a *Thanksgiving* such as has not been possible before in a score of years.

**A Special Land Premium for Subscribers.**—Since our regular Premium list went to press, we have completed arrangements whereby we are enabled to present Eighty Acres of fine land in Iowa to the individual who forwards us Eight Hundred Subscribers to the *American Agriculturist* at $1.50 each. It is situated two miles from the border line of Minnesota and Iowa, and is about five miles from Bigelow, Minnesota, which is a station on the main line of the St. Paul and Sioux City railroad. The land is rolling and the soil is of a deep rich loam. This, like other lands along the St. Paul and Sioux City road, is admirably adapted for agricultural purposes. The above farm can be purchased for $600.

**The Window Flower Garden,** is the title of a work by Julius J. Heinrich, a practical florist, which gives in a familiar, yet concise manner, plain directions for cultivating window plants. The great trouble with the majority of works of this kind is that they aim at too much, and by treating of a large number of plants, confuse the novice. Mr. Heinrich very judiciously selects a few plants, such as are generally popular, and of which the culture is not difficult, and gives simple directions, which, if followed, can hardly fail to lead to success. In view of the increasing taste for window gardening there has arisen a demand for various appliances, such as window boxes, brackets, etc., to meet which an entirely new branch of manufacture has sprung up within a few years. This work describes these new fixtures and their uses, and gives illustrations of many of them. The work contains a large number of engravings, and we are confident that it will be acceptable, and prove valuable, to a vast number of lovers of plants and their culture. Published by the Orange Judd Company. Sent by mail for 75 cts.

## Sundry Humbugs.



Nothing is more surprising to us, after all we have written concerning Wall St. schemes, than to receive month after month almost daily inquiries concerning the parties who send out attractive circulars to induce people to invest in stock speculations. So far as we have inquired, the parties engaged in the business have a large bank account, and as we have never heard anything to the contrary, have no doubt that they will do all that they agree to do. The trouble is not that the parties are unreliable, but that the business is risky. We have often said, and repeat once more, that the risks in stock speculation are such that in business circles no one engaged in regular business can be known to speculate in stocks without greatly injuring his credit. That large sums are made in stock speculations, we admit—so they are made on horse races. It is safe to say that these attractive circulars should have no attraction for any reader of the *American Agriculturist*—at least for no farmer—unless he has money that he had as lief lose as not. So far as we have inquired, those who send out the circulars do not belong to the Board of Brokers. One of this Board said to us, "If your readers *have money to lose*, why don't they send it to us, and let us lose it in a legitimate way"? That is the way the matter is looked upon by one who has been in Wall St. these many years.

HASTY COMPLAINTS.

It has several times happened that we have received letters complaining of well-known dealers, the parties writing that they have ordered of, and sent money to, "So and So," and have received no returns, and, of course, wishing us to show "So and So" up as "humbugs." Knowing the chances of error, our first step is to make inquiry of the persons accused. In more than half the cases we have found that the persons accused have letters from their accusers, acknowledging the receipt of goods, or whatever it may be—*but* the persons who complained have *omitted to inform us*, as they should have done at once, that the matter had been adjusted....In August last we gave a brief notice of the revival of the old "Hotel Dodge," and illustrated its method by the publication of a letter from R. V. Kingsland, San Francisco, Cal., to a gentleman in N. Attleborough, Mass., notifying him that a person who registered by the same name had died at the hotel kept by the aforesaid Kingsland. But now alas for Kingsland,

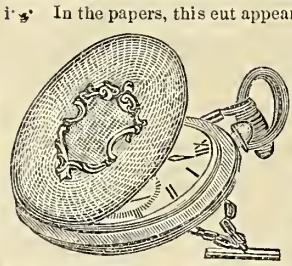
HE DOESN'T KEEP ANY MORE—HE IS KEPT!

Kingsland wrote just one letter too many when he stirred up a correspondent in G. M. Copeland, Esq., at Brockton, Plymouth Co., Mass., as we learn from the "Brockton Enterprise." To judge from their paper, the Brocktonians are wide-awake people, and they don't believe in fooling with the sympathies of surviving relatives and friends. When Mr. Copeland learned that a friend, W. S. Green, Esq., was about to visit San Francisco, he gave Mr. Green the letter from Kingsland, with a request that he look the matter up, and learn more about his dear departed namesake. Green, like "the course of empire," westward took his way. At 'Frisco he hunted for Kingsland and his hotel; finding neither, he sought help. Detective—search—arrest—trial—conviction—sentence—and if for the next two years people from Attleborough and from Brockton go to San Francisco and die at hotels, there will be no sympathizing Kingsland to write to surviving friends for that "$30 for board and attendance."

There has recently been advertised far and wide the so called

"SOLARGRAPH WATCH,"

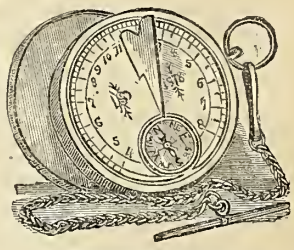
and numerous inquiries have been made concerning it. It is advertised by the "Eastern Manufacturing Co.," Rockland, Mass., by the "Star Manufacturing Co.," South Weymouth, Mass.—places to be regarded as "spokes," and at the very "Hub" itself, by one Slocomb in Boston. It is advertised in papers, and by postal cards. Each advertisement is illuminated by an engraving. In the papers, this cut appears thus:



THE WATCH IN THE ADVERTISEMENT.

The advertisement is too long to copy. It states among other things: "A perfect time-keeper, hunting case, and heavy plated chain, latest style. We warrant it for five years to denote time as accurately as a $100 chronometer watch, and will give the exact time in any part of the world. **** For men, boys, travellers, and farmers it is indispensable. They are as good as a high-priced watch, and in many cases more reliable. Boys, think of it! **** The Solargraph watch is being fast introduced into all the schools throughout the United States, and is destined to become the most useful timekeeper ever invented."—There is much more, equally attractive, all about a watch to be had for $1. Wishing to be able to answer inquiries, we sent for a "Solargraph," and

HERE IS ITS REAL PORTRAIT.



THE WATCH AS IT IS.

The "Solargraph" is a sort of thin metallic pill-box, within this is a circular block of wood, upon which is pasted a paper sun-dial—a little crooked piece of metal dignified with the name of "Gnomon" (probably because it is of no use to noman), to make the shadow, and a compass as big as a half dime, complete the "works." Then there is a chain! It is really a small, very poor sun-dial, set forth as shown above

BY A MOST DECEPTIVE DESCRIPTION

to appear as something else. It has no "hunting case" any more than a box of shoe-blacking has. Its case is of some white metal, not even gilded, but washed with lacquer, a yellow varnish. The advertisement claims that it contains "a first class compass." If "first class" means unvarying—always there—this may be; so far, ours has

"PINTED DUE NOR' RARD"

ever since we have had it. The whole thing is a very mean swindle, about which we would say more were it not likely to be thoroughly squelched. On the day the engravings were made for illustrating it, there came a despatch from Boston stating that three parties of Rockland, Mass., and one Mrs. Hunt were held by the U. S. authorities in $1,000 each for a misuse of the mails. It is alleged that they have advertised by postal cards and letters the sale of valuable timepieces for $1, and in answer to applications have sent the "Solargraph."....Inquiries are still made about the wonderful

"CLEAR OUT YOUR STUMPS"

circular, of which a quite full account was given last month. As the method proposed to remove "New and old stumps," and do it in "the first three months" we were interested in the matter agriculturally, but when it proposed to do it with *Electricity*, we were at once interested in it scientifically. Ever since the lightning made kindling wood of our tall Elm tree, we have had

an idea that some one would take out stumps by electricity, and we looked upon Horton as the "coming man." There was this difference though: our electricity was to do it with a slap and a bang and be done with it, but Horton's is only to show effects "after five or six weeks." Horton had his electricity tamed we thought—but at all events we invested $1—in some of Wm. V.'s Slow lightning — Slow! we should say so! We sent our money—that went quick enough — it always does! — but the way in which Horton's stump extracting lightning didn't come—in return, was slowness intensified. We didn't count the days, but it took between two and three weeks to get ten miles or so. At last we received the stuff—

HORTON'S STUMP EXTRACTOR.

"A BOX OF POWDER."

Just think of powdered lightning? Then the directions that come with it are so plain. In fact they are illustrated by a cut—doubly a *wood*-cut. That our readers may see just how the stuff is to be used. Here it is:

DIRECTIONS.

"Take any common wire, make a loop in the end, wind around the head of a ten penny nail—then drive in a root thus holding the wire tight—*see cut above*—do the same with another nail in the top of the stump, twist wire from the other nail and drive it clear in to the head. Then take a good pinch of the compound and place on head of nail in the top of the stump. This will commence to act as soon as it is moistened. After five or six weeks if the bark does not show a decay, apply another pinch in the same place—always drive the nail in the top where there is a depression or rough place and as near the center as possible—the rough portion will hold the compound and prevent its loss—by following the above strictly, will do the work perfect."

If after five or six weeks the electricity don't work, "apply another pinch." * * "By following the above strictly will do the work perfect"—which we suppose means "perfectly." The work most likely to be "perfectly" done is to

FOOL WHOEVER TRIES IT OUT OF HIS MONEY AND HIS TIME.

This is no improvement on the Arkansas method. We once, in Texas, heard a Missourian and an Arkansan badgering one another upon the peculiarities of the people of their respective States. Said the Missourian, "Your people in Pike County, Ark., are too lazy to cut firewood. You lay an iron wedge up in the crotch of a tree and sit down and wait for the lightniug to come and strike it." But what *is* this wonderful Powder? We are not quite through with it yet, and will tell of the marvellous stuff at another time....We have on various occasions shown the various tricks resorted to for

PROCURING NAMES AND ADDRESSES.

There is one that the Postal authorities should look after. The proprietor of a quack medicine proposes to Postmasters to send a Boston weekly paper for three months "to all Postmasters who furnish a list of persons receiving mail at their offices." A sheet ruled and with printed heading is furnished for the Postmaster to sign and fill out. Some Postmasters, instead of filling the sheet, send it to us. They would do better to send it to the General Post Office. We are surprised that the "Manager" of the paper, usually regarded as a respectable one, should be a party to this attempt to flood the country with quack medicine pamphlets. ...We some months ago showed up

"THE DICTIONARY HUMBUG."

Parties in different parts of this country and Canada, offering to send for a fraction of a dollar (price variable), a Dictionary claimed to be worth $6.00 or so. We have shown that the Dictionary sent, by some of these advertisers, at least, is really not worth half the price asked for it. One advertiser of Dictionaries does not like our exposure, apparently, as he puts at the bottom of his advertisement, the following: "☞ This book contains more than four times as many words and ten times as many engravings as a book published by the Orange Judd Co., for which they charge $1.50." Well, we shouldn't wonder; but our readers have the old-fashioned notion that the value of a book does not consist in the *number* of words, but the way in which they are put together! .....

THEY HAVE THEM AT ST. STEPHEN,

New Brunswick, Canada—those Royal Gift Soires—and monthly, too. There is a wonderful family likeness in all the forms of the Lottery that break out in the Dominion, to the old schemes of Topeka and the rest. Can the same motive power be there? The "Special Distributions," where every "stool-pigeon" will be sure to win a prize to coo over, look much like it. Our Iowa friend need not regret that he tore up the tickets, we have lots more.... Here is just altogether quite

THE STRANGEST THING ABOUT LOTTERIES

that has happened to us. An advertising agent in Europe, wishes to know if we "are willing to enclose circulars, similar to the one adjoined, in your issue, one to each of your subscribers." The circular is no less than the

"GREAT MONEY LOTTERY OF HAMBURG!"

which we shall take special pleasure in warning people to let severely alone....We have, on more than one occasion, remarked on the "periodicity" of Humbugs, that is, their tendency, like comets, to return at longer or shorter intervals. For example, there was the

WHITE WIRE CLOTHES-LINE,

which, some 10 or 12 years ago, was frequently presented in these columns—not as being of necessity a fraud in itself—but was made the subject of various sharp practices and small swindling games. It was like meeting—not an old friend—but an old enemy, to come across recently, in the "Montgomery News," Hillsboro, Ill., an account of a clothes-line swindler. It is the old story over again. A complicated bargain, of wire given away, more wire at 10 c. a foot, more at 5 c., and still more at 2½ c. a foot, and when the "agent" had the farmer so confused by his glibness, with feet and prices, and that he was not to pay for the wire until sold, he, the farmer, Mr. Fath, gave an order. In a few days, the agent having in the meantime gone to take other orders, came back to Mr. Fath, and wished his note for $110.00. Mr. Fath couldn't see it; agent began to be abusive and threaten, whereupon, Fath, Jr., goes for revolver, and agent "gets." Another farmer, Mr. Hillman, was called upon and told that Mr. Fath had given note for $110.00, and that he must do the same; Hillman refused, agent threatened suit, Hillman would have to go to Chicago to defend himself, would lose his property and all that; Hillman had no Junior at hand with revolver, so he yields, and at last accounts, was going about warning the banks not to buy his note....We have in this month's budget, two notes as unlike as can be. One from Western New York, says: "Many farmers in this vicinity are signing notes and bills, and eventually coming to grief, but this example does not seem to effect others. Will you not kindly write an article on this subject for the next *American Agriculturist*." Goodness! what can we do more than we have already done? The other writer; this one from New Jersey, says: "Why do you keep harping upon farmers signing notes. If some men think they can make a dollar, they will sign anything; you can't prevent them. The best way is, to let them suffer the consequences, and instead of pitying them, I say 'it serves them right.'" We say: FARMERS BE CAREFUL *always* WHAT YOU SIGN, *and for a stranger,* DO NOT *upon any pretext whatever,* SIGN ANY THING—*not even to give your own address, unless it may be in the presence of witnesses.*

**Kainit.**—"J. C. P. M.," Baltimore, Md. This is the name given to the mineral which is abundantly mined in Stassfurt and other places in Germany as a source of potash for use as a fertilizer. It is a compound of Sulphates of Magnesia and Potash, with Chloride Magnesium, and some water. This is one of the most available of the known sources of potash: but only the best grades, *i. e.*, those with the highest per cent of potash are profitable.

**Poisoned by Toadstools.**—Two children in Linden, N. J., have just died from the effects of eating toadstools, and the rest of the family is suffering from the same cause. There is only one way to avoid such calamities—never eat mushrooms unless it is *positively known* that they are of a harmless sort, and as only a very few persons can distinguish the poisonous from the edible, it is the safest for all others to not eat them at all. No general rule can be given that will serve as a guide in selecting the harmless sorts. The only way is to *know* the good ones just as one can tell an acquaintance from a stranger without being able to tell why.

**Lime for Land.**—A few days ago, we were in Sussex Co., N. J., and while waiting for a train, we found a farmer loading lime from a car. He pays 9 cents per bushel, and about one cent for freight, so that it costs him 10 cents per bushel at the depot. He puts on 50 bushels per acre, at a cost of $5, besides the drawing from the depot and spreading upon the land. The lime is brought on long, flat cars, which hold 300 bushels, and come direct from the kilns, about 30 miles away. On any land where there is an abundance of undecomposed vegetable matter, lime is of special value to liberate the plant food. Lime acts as a stimulant in facilitating decomposition, but on land poor in organic matter it is of little value, and is not worth the cost. Lime of itself will, in time, make the best land poor unless it is constantly supplied with organic matter, as for example barn-yard manure.

**The Fairs.**—As we go to press, the Premium Lists of fairs are still coming in; and every mail brings us letters of invitation and complimentary tickets to these exhibitions from all parts of the country. So long as physical laws remain the same—one of which is, that a body can not be in two places at the same time—it seems imperative that we decline the majority of the invitations. We are sorry that it is not possible to attend many of these useful exhibitions of our prosperity, as we always feel well paid in old friendships renewed, new acquaintances made, and information gained. To all who have sent us letters, tickets, premium lists, and other information concerning their fairs, we tender our hearty thanks and hope that in every case the exhibition may be a perfect success. It would appear that more fairs are held this month than usual. In last month's Fair List, a large number of October Fairs are given, and a List of other October Fairs will be found on page 401.

**Blasting Stumps.**—Inquiries are frequently made by those with land to clear of stumps for some method quicker than the old one of slow digging, and pulling with a team of horses or oxen. We refer such to the January number of 1877 of the *American Agriculturist*, where a full description of the clearing of stumps and stones by blasting is given, with illustrations, showing the method of using the Giant Powder cartridges. This material is advertised by the Atlantic Giant Powder Co., 59 Park Place, N. Y., who furnish full directions for its use.

**Aphides on Peach Leaves.**—"A. H.," Haverhill, Mass. The curl of the peach leaves sent by you is caused by Plant Lice, or *Aphides*, an abundance of which may be found on the inside of the leaves. The "larger millers" which were seen hovering around these leaves "lighting, and apparently feeding some larvæ within the curl of the peach leaf," were moths, not feeding, but *feeding upon* the lice, or rather the sweet liquid which exudes from their bodies. Ants are frequently found in abundance upon leaves infested with Aphides, and for the same purpose. It is quite wonderful what care ants sometimes bestow upon the lice, protecting and providing for them much as we do for a cow, horse, or other animal which is a source of strength or of food to us.

**Spreading Manure.**—There can be no waste in spreading manure at this season as fast as it is made. There is more danger of waste by keeping it in the yard, exposed to the air and to the washing by frequent rains. From the time that the manure is dropped until it is spread upon the land, it is subject to waste by gradual decomposition. When spread upon land, it loses nothing by decomposition, for the soil absorbs every portion that is liberated by this process, and is washed into the soil by rains. It is, therefore, advisable to spread manure, if it is needed, upon meadows and plowed ground as it is made, both at this time and during the winter, without fear of loss from evaporation. It has been the practice of good farmers for some years back to keep the manure on the surface, or as near to it as possible, and top-dressing is now substituted successfully for plowing in in many parts of the country.

**"Horses Gnawing Mangers."**—Mr. H. D. Stratton, East Hampton, Suffolk Co., L. I., writes as follows. "I have read in the June number of your *American Agriculturist* what 'Subscriber' says about 'Horses Gnawing Mangers.' I have for the past fifty years found that horses kept up in stables where they could not get at the ground were apt to do so, and I have given them a a turf of good earth or clay soil, from 1 to 2 inches thick, and when given to them often I have had no trouble with their gnawing mangers, and I think if properly used, there would be less 'crib bite' of which to complain."

**Freezing and Thawing.**—"It is not so much the jumping as the striking which hurts." So with a tender plant, it is not so much the freezing as the thawing that injures. When a plant freezes, the water of the sap separates from the thick material, often running out into the spaces between the cells. If the thawing is slow, the water will return into the cells and the plant will often sustain little or no injury, while if the thawing is rapid the return and readjustment is not brought about and the part or whole plant dies. If a plant is frozen it should be "thawed out" slowly and with great care by keeping it a little above the freezing point. This is an important fact, and may save many valuable plants

**Club-Root in Cabbages.**—M. Woronin, an eminent microscopic botanist, has been giving considerable attention to the rather common destructive and mysterious trouble among cabbages, known as *Club-root, Stump-foot, Club-foot*, etc. He finds that the abnormal growth is caused by a minute fungus, to which he has given the name of *Plasmodiophora brassicæ*. Thin sections of the diseased portions reveal the fungus with its spores under the higher powers of the microscope. As the spores are exceedingly numerous, the soil may become infested with them, and communicate the trouble to plants upon the same soil the next year. A diseased crop should not be followed by cabbages again. Only healthy plants should be set. An application of lime to the soil has proved of benefit; and from the nature of the trouble the use of sulphur would be likely to be useful.

**The Telegraph Water-Carrier.**—In making the drawing of the pulley for the Telegraph Water-Carrier, described last month, the artist did not clearly represent it. The pulley consists of a hollowed roller an inch in diameter, with a flange on each side 6 or 8 inches in diameter, fitted firmly to it. The pulley thus hangs upon the wire rope without danger of running off, and also passes safely over the arms, upon which the wire is fitted into shallow grooves and held with staples.

**Are Free-Martins Fertile?**—"W. S.," Iron Co., Mo. Free-Martins so-called, in reality a twin pair, male and female, are supposed to be incapable of breeding. Why it should be so, when the female *is* a female, is inexplicable physiologically; but it is said by many breeders that such is the fact. That the popular idea has some reasonable foundation, is probable, but it is well known that it is not of universal application. Many cases are known to the contrary, and the rule seems to be that when the female twin is properly and fully developed, and has the true female appearance and form, she will be a breeder; and when the supposed female has a bullish look, she will be found on examination, imperfectly developed, and consequently sterile. A case recently occurred in a noted Short-Horn cow, Duchess Lally, 2d, which was a twin with a bull calf. This cow, 3 years old, produced a roan heifer calf, in July last, by Gd. Duke of Kirkledrugton, 2d.

**A Nebraska Well.**—"L. S.," Red Cloud, Minn. The sub-soil of Nebraska is generally sufficiently solid to retain its form when excavated, especially in wells, without the protection of a curb. Open banks exposed to sweeping rains and storms, show very little wear during many years, so that it is thought unnecessary to protect the walls of wells. This is fortunate, as material for that purpose is scarce, or not readily obtainable.

**Gradual Change of Climate Through Cultivation.**—In making an examination of the Western Plains, several years ago, we hazarded the opinion that the gradual spread westward of cultivation would have an important effect upon the climate, and tend to increase the atmospheric moisture by retaining the rainfall in the soil and giving it back again by gradual evaporation, instead of its sudden disappearance from the hard unbroken surface into the rivers. The expectation is becoming verified. In Western Kansas, the wheat and corn line has moved west 100 miles since then, and in Colorado, the finest wheat, and even oats, have been grown this year without irrigation.

**Stubbling in Wheat.**—"F. F. R.," Valley Creek, Tex. Wheat can be "stubbled in" by sowing on the bare ground, and covering with a light plow. Or the ground may be run through with a cultivator, and the wheat drilled in with a one-horse drill which is made for the purpose, and sows 3 or 5 rows in each middle. (This drill is offered as one of the premiums by the *American Agriculturist.*)

**Fall in Tile Drains.**—"E. A. C.," Huntley, Ill. There is no difficulty to be apprehended in an irregular fall in drains, unless some portion is nearly level. Where a drain falls 3 inches to the rod for the first 40 rods, and 1½ to 2 inches for the next 40 rods, there will be no danger of the deposit of sediment, which is the only trouble to be feared in any case. In draining irregular ground, it is impossible to avoid some difference of grade, and with even a fall of 1 inch to the rod, there will be a sufficiently rapid flow to carry off sediment or muddy water. In laying tiles where sediment is to be expected, the joints should be fitted as closely as possible, and it might be well to even them with a piece of coarse stone, or a rasp.

**Merinos for Colorado.**—A car-load of 100 Merino rams has recently been shipped to Trinidad, Colorado, for the flock of M. E. West, of that place. The rams were shipped by Hon. E. Townsend, of Pavilion Center, N. Y., a noted breeder of Merinos. They cost $2,550.

**Tuberculosis in a Cow.**—"S. B." Tuberculosis, or consumption, produces weakness, abortion, often gangrene and loss of tail, with increasing emaciation. A cow thus affected is probably past cure. The following may be tried without harm, viz.: give one ounce of Hyposulphite of Soda, with half an ounce of Gentian root powdered, daily, for a month, then reduce the soda one half, but continue until a change occurs. Give bran mash once a day with a handful of salt.

**Treatment for Garget.**—"A Reader." Your remedy for garget is not new, but has been frequently given in the *American Agriculturist*; this is to inject with a common syringe, or a bladder to which a suitable tube is fastened, a half pint or more of a solution of Bi-carbonate of Soda (Saleratus may be used as a substitute), and after it has remained in the udder for 10 minutes, to milk it out. It dissolves the caked milk, neutralizes the acid, and helps to bring away the contents of the udder which otherwise could not be drawn. Bathing the udder with warm water with considerable rubbing is useful.

**Patent Fences.**—"H. T. W." The fence made by laying up rails between double stakes set in the line of the fence, and wiring or fastening the stakes together, and finishing the top by stakes and riders, can not be legally patented, it being a very old and common fence. The writer built a fence of precisely that kind over 25 years ago. It is so easy to procure a patent on an old thing in common use, that much trouble and fraud occur.

**Cement of Floors, Etc.**—"J. H.," Potter Co., Pa. The cement used for concrete and for floors, is either Rosendale, Kingston, or Newark cement; either is now worth about $1 a barrel. Portland cement is imported, and costs about $3 the barrel. It is no better than American cement, excepting where it is required to set quickly.

**Salt for Hogs.**—"S.," Grand Prairie, Arkansas. Hogs require a moderate quantity of salt, but they can not use as much as a sheep without injury, because of the different character of their intestines; the swine's stomach is small, and is easily affected by acid substances, while the sheep's paunch is large, and a large quantity of salt may be eaten with impunity, as it is largely diluted by the half liquid contents. Half an ounce of salt may be given occasionally to each hog, separately—not when in a bunch—otherwise some will take too much.

**Mangels or Carrots.**—"W. D.," Greenville, Miss. Mangels are more easily grown than carrots, requiring less weeding, and they yield more. Otherwise there is not much difference between them. Mangels are largely grown, but carrots very seldom.

**Grass for Wood Lot.**—"E. R. S.," Akron, Ohio. A wood lot may be seeded after the rubbish is raked up or burned off, by sowing any grass that may be desired; if it is intended for pasture, a mixture of the grasses usually sown will be advisable, but Orchard and Blue-Grass should form the bulk of the seed.

**Southdown or Cotswold Lambs.**—"H.," Baltimore, Md. Butchers will always pay more for a grade Southdown or other dark-faced lamb than for a grade of any white-faced breed. There is a reason for it, besides the alleged stupidity of butchers. Business men who look for profit are not always stupid. Black-faced sheep are descended from Southdowns or Scotch sheep, and these sheep are plump, solid, and easily fatten, and their lambs are like them.

**Lime for Black Muck Soil.**—"G. A. P.," Marlboro, N. H. Lime is a very good fertilizer for black mucky soil, as such soil contains a large quantity of raw, undecomposed vegetable matter. In seeding such land to grass, it would be advisable to spread 30 or 40 bushels of air-slaked lime per acre as soon as possible upon the plowed surface, harrow it in in the spring, and sow the grass seed with a thin seeding of oats.

**Preparing for Roots.**—"W. V. B.," Warren Co., N. J. Land intended for roots should be plowed as soon as possible. It may be left rough, and manured in the winter, ready for cross-plowing in the spring. Roots can not succeed well unless the bottom soil is mellow, and deeper plowing is needed for roots than for grain.

**The Disk Harrow.**—"S.," Martin, Tenn. The disk harrow is a very useful implement; we find it rather heavy of draft, but the work done by it is excellent.

**Washing Machines and Washers.**—The introduction of a "Washer" as distinct from a "Washing Machine" for family use is something comparatively recent, though not altogether new. In "Washing Machines" the fabric is filled with water or suds, and then forcibly squeezed out; this is done in a great variety of ways, from the old-fashioned pounder to the most approved machine—in all the washing is accomplished by a succession of squeezes or pressing. In bleacheries, where immense quantities of fabric are to be thoroughly cleansed, the cloth is placed in an immense vat, and a stream of suds or other cleansing liquid is allowed to play upon it; this liquid, by a simple contrivance, is made to fall in a continuous stream; it passes down through the fabric, carrying out whatever impurity it dissolves, and rises again from the bottom to repeat this again and again, until the liquid had taken out of the cloth all that it can dissolve. When this process, so effective on the large scale, was made available in the family, the apparatus was called "A Washer," to distinguish it from those in which pressure and squeezing were used. The "Washer" is really the "Bucking Tub" of the bleachery upon a small scale, and of this several forms have been offered during the past 20 years or more, differing in producing the effect by a more or less simple method. The style of which we have had special knowledge is the Robbins' Family Washer, which accomplishes the end—a continuous flow of soapy water—in a simple and effective manner. Were we to stop just here, we should be overwhelmed with inquiries about the usefulness of the Washer. In no other domestic labor-saving contrivance so much as in Washers and Washing Machines do the makers have to contend with the fact that the help *won't be helped.* There is an ingenuity of stupidity as well as of intelligence, and the inventiveness sometimes displayed in preventing the working of a useful contrivance would work wonders if properly directed. So with regard to this Washer. If left to the sole management of "help" that are determined that neither this nor any other appliance shall prevent them from doing the washing by "main strength and stupidness," will very likely not work. Every mishap to the washing will be ascribed to it, and all will go wrong until it is set aside. To an intelligent person, one who is willing to adopt whatever promises to be a real help in the hardest of domestic labors, who is determined to make it work if it will work, it can not fail to facilitate washing, and at the same time save much wear and tear of clothes.

**Orchard Grass.**—Our recent experience with this grass has been more favorable than we expected. Knowing from former experience its value for pasture and for mowing, we have sown it extensively the past two seasons, for soiling purposes chiefly. A field seeded last fall has been cut three times, and will doubtless furnish another cutting in October. This grass is largely grown in Kentucky, some farmers producing as much as 1,000 bushels of seed every year. The regular price in that State is about $1 per bushel, which is about one-third the price it is sold at in the East. As this grass should be sown thickly, at least 3 bushels to the acre (with 4 quarts of Red Clover), the cost of the seed is a serious item to consider. The season for seeding is early in the spring, and a supply of seed should be procured in time.

**A Simple Stump Puller.**—"F. A. W.," Morris Co., N. J., suggests in using the stump puller described on page 338, September *American Agriculturist*, to reverse the position of the lever, and make the ring the fulcrum in place of the stump. This, he says, has been found the best manner of using the lever.

**Founder or Laminitis.**—"J. A. C.," P. E. Island. Founder, or fever of the feet, is caused by high feeding and hard work on hard roads, but many horses are predisposed to it by constitution. The usual treatment is to give Salts in 12 ounce doses, once or twice, followed by half ounce doses of Saltpeter, to cool the system; then take off the shoes, put the feet in hot water baths, and give the horse a rest.

**Weight of Hay.**—"C. S.," Brooklyn, L. I. We can not explain why "Haswell's Engineer's Hand-Book" should incorrectly state that 216 cubic feet of hay from a stack will weigh a ton, unless it be that civil engineers do not have so much to do with hay as a farmer has. We have weighed many loads of hay from stacks and barns, and know that Haswell's figures are wrong. You can test it by measuring a bale of *pressed* hay, which you will find to weigh about 5 pounds to the cubic foot.

**Lime and Superphosphate.**—"J. S. K.," Adams Co., Pa. When lime has been used for wheat the present season, it will be judicious to wait until spring before applying superphosphate. This will avoid the risk of loss of the superphosphate, and at the same time will supply the crop in season for its wants.

**To Use Night-Soil.**—"F. A." Night soil can best be utilized by mixing with earth and spreading it over the fields. If the mixture is thrown into a heap and exposed as little as possible to the air, it may be kept for some months without loss, and may be used with good results in the hill as a fertilizer for corn.

**Water from a Syphon.**—"H.," Doe Run, Pa. A syphon will draw water from a depth of 24 or 25 feet, and a foot or two more with a very smooth pipe. Theoretically it should draw water from a depth of 33 feet at the sea level, but the friction of the water in a long pipe tends to reduce considerably its power.

**Dominique-Leghorns.**—"L. A.," Flemington, N. J. We are aware that this variety of fowl has been admitted to the American standard of excellence in 1876 only; but this does not make it a *breed.* It is to be considered a cross or a sport, having the plumage of the first and the comb and ear lobes of the second. If the plumage is the most important, it is a variety of Dominique; if the comb and ear lobe are of more account than the plumage, it is a Leghorn, but it is a mongrel, and not an established breed; at least so we consider it, and shall hold to our opinion until the matter is settled by some established poultry authority. The name itself supports our view, because it can not be truly a Dominique-Leghorn without being a cross, as the name implies.

**Winter Pasture.**—Where the winters are open, and the ground is but rarely frozen and covered with snow, a field sown with rye will furnish excellent pasture for sheep or cows during the winter or early spring months. The rye is eaten off closely, but it soon thickens up, and if the stock is taken off in March, an excellent crop of grain may be harvested. It is necessary to watch for the production of the sheath which contains the immature spike or head; when this is found, pasturing should be stopped, as it will not grow again if it is eaten.

**The "Welcome" Grape.**—Mr. J. H. Ricketts, of Newburgh, N. Y., whose marked success in producing new varieties of hardy grapes, we have frequently referred to, has experimented with exotic grapes with no less gratifying results. We recently saw and tested the grape to which he has given the expressive name, "Welcome"! as that must have been his thought when he first tasted its fruit. It is a cross between one of the Hamburghs with one of the Muscats, we have forgotten precisely which. The result is, to our taste, the best exotic grape we have ever tasted. The late A. J. Dowuing described one of our native grapes, the "Elsingburgh," we think, as "little bags of wine," and we know of no better description for the "Welcome" than to say that its berries are "large bags of wine." They are about the usual size and color of the Black Hamburgh, but there all likeness ends. The berries are without pulp or flesh, but melt away in a rich juice, with a refreshing quality, as delightful as it is rare. This grape must be "Welcome" to every grapery, and take the highest rank among exotic grapes at home and abroad.

**Wool-Growing, Stock-Raising, or Farming.**—"A Young Man," Pittsburg, Pa. A youth is too apt to contract wrong notions about the facilities for making a fortune in the West. It requires capital and experience to succeed in wool or stock-growing, and at least experience to succeed at farming. A sheep or stock farm can not be started on less than $4,000 or $5,000, and a farm would require $1,000 to begin. A youth might go West and work for his board for a year, and then for wages while he learns his business, and in time, he might get into business for himself. But only a very small proportion ever get rich, and it takes many years to become even comfortable. There is hard work to be done in the West as well as in the East.

**Gang Plows.**—"H. P. O." Gang plows can not well be used in stony or stumpy land, or to turn under tall weeds very well. They are very useful on level, light soils, and where the furrows are long, with few turnings.

**Change of Seed.**—"W. V. D.," Clarion Co., Pa. It is not necessary to change seed; but it is necessary to select the best for sowing. Poor farmers are obliged to change the seed because what they grow is usually poor; hence the prevalent opinion among such farmers.

**Fruit-Preserving Powders.**—When Fruit-Preserving Powders were first introduced, several years ago, we examined into the matter before we would allow their advertisements to appear in our columns. We are assured that the composition is not essentially different from what it was then, and what was said concerning them at that time, is equally true now. The composition of these powders was given to us in confidence, and we are not at liberty to state it. It is a natural product found in several parts of the world, and though it possesses preserving qualities in a much more striking degree than common salt, it is, unlike that, with very little taste, and so far as medical authorities have discovered, it is not known to exert any manifest effect upon the animal system in large doses, while in the small quantity used in preserving fruits, etc., it is, so far as known, practically inert. We have tasted fruits and cider treated with these powders—see advertising pages—and have found them well preserved and without unpleasant taste.

**Loose and Compact Soils and Evaporation.**—In order to have the greatest evaporation, the surface of the soil must be constantly wet. After the upper layer of the soil has had its water evaporated, it must be supplied from below, in order that evaporation may go on. This supply from below, depends upon the capillarity of the soil, or in other words, the fineness of the pores—the finer the pores the greater the supply. A compact soil has greater capillary power, and when the upper surface is comparative dry, will evaporate a large amount of moisture. If such a soil is broken up, and the surface made to consist of coarse lumps, the power to raise water from below is much weakened, and there is less evaporation. This is the explanation of the general belief that it is important to keep a soil loose in dry weather, and break up any crust that may have formed after a shower.

**Octagon Barns.**—"C. H. C.," Johnson, Vt. The octagon barn was originally devised by E. W. Stewart, of Buffalo N. Y., who could furnish detail plans if these are desired. A plan and description was given in the *American Agriculturist* for July, 1876. The octagon shape gives the most space for the same length of wall and cost.

**Asparagus—Smalley's Early Defiance.**—There are those who deny that there are any varieties in Asparagus, and found this opinion upon the fact that the Asparagus has its sexes separate, in different plants. We do not see why this should hold in Asparagus, and not in Hops and Persimmons, the two cases that now occur to us of diœcious plants well known as having varieties of cultivation. That there are varieties of Asparagus sufficiently unlike to make some more desirable for cultivation than others, we are as well convinced, as that there is a difference in cabbages, though the difference is not so striking. The young, year-old plants of Smalley's Defiance, or of Colossal, are very different from the common, and we have a kind in the garden, for which we have no name, that is entirely distinct at all stages, from either. We have been familiar with Smalley's variety for two years, and feel sure, that in earliness and in excellence of flavor, as well as in the proportion of each shoot that is tender and eatable, this variety is sufficiently distinct to make it desirable for both the home garden and for market. We have not mentioned size, as this, more than any other character, may be produced by high culture. In this, it will compare favorably with any other variety.

**Purchasing Sheep on the Plains.**—"A. W.," Saratoga, N. Y. It is always easy to purchase stock ewes from flocks on the range, or to pick them out of dealers' stocks at Kansas City, Mo., Whichita, Great Bend, or Abilene, in Kansas, or Denver, Col. The best method is to seek a flock on the range and pick out what are desired. Pure bred rams can be purchased at Kansas City, or at Denver, from breeders who make a business of rearing them to supply flocks. There are good ranges to be taken up in South Western and Western Kansas.

**The International Dairy Exhibition.**—The Dairy Exhibition held last December was, as a whole, a marked success. There was some fault-finding, due largely to the inexperience of those who managed it rather than to any wrong intent. There never was a fair at which every one got the first prize, and there always will be disappointments. Soon after the last Exhibition, an "International Dairy Fair Association" was formed, and its Board of Managers have determined upon another fair, which will be held at the same place—American Institute Building, 3d Ave. and 63d St., during the 2d and 3d weeks of December next. More room will be supplied, and greater facilities afforded in every department, and it is expected that dairy processes will be carried on upon a much larger scale than ever before, and that there will be a much larger exhibition of specimen dairy cows and of herds. The premiums are not yet decided upon, but it is expected that the amount offered will be greater than that of last year. The Secretary and General Superintendent is T. Mortimer Seaver, 309 Greenwich St., New York, to whom communications may be addressed.

**The John D. Billings' Horse-Shoe,** if it had no other merit, would be a great blessing to those who must have their shoeing done by incompetent shoers, in the fact that they are to be put on cold. There is no burning of the foot to save the trouble of fitting of the shoe. The fashion of the shoe is such that it must be useful in cracked hoofs or those that are otherwise injured, and are highly approved by those who have used them.

(*Basket Items continued on page* 399.)

## Bee Notes for October.

BY L. C. ROOT, MOHAWK, N. Y.

THE HONEY CROP FOR 1879.—Inquiries come from all parts of the country as to the prospects for remunerative prices for honey the present season. From a quite extended knowledge of the amount of honey produced, I think I am safe in saying that prices will rule better than for several years past, as the yield throughout the States is less than half the usual average. Besides this, the low price of recent seasons has created an increased demand, and the foreign demand for American honey has also greatly increased. There is but little doubt but the call for best grades of both comb and liquid honey will far surpass the supply. It is not unreasonable to anticipate that the best white honey in single comb boxes will bring 25 cts. per lb., and the best liquid honey 15 cts. per lb., at wholesale. The necessity, hitherto strongly urged in these pages, of placing our honey upon the market in neat and attractive condition, should not be overlooked. Extracted honey is at present in greatest demand, in firkins holding from one to two hundred lbs. each, yet in some markets it sells well in jars or bottles. Figure 1 shows a case containing one dozen quart bottles. Figure 2 shows three cases of box-honey, the largest containing 12 section boxes, weight, 20 lbs., being the most popular. In manufacturing cases, use White Basswood lumber, and do all work neatly and accurately.

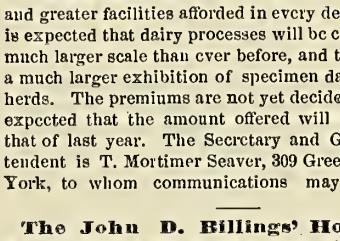


Fig. 1.—CASE OF BOTTLES.

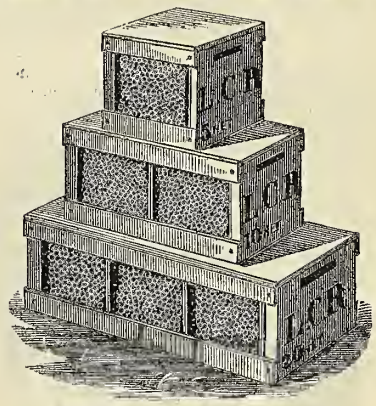


Fig. 2.—CASES OF COMB.

PROPER SIZE OF OPENING BETWEEN BOXES AND HIVES.—Rev. A. F. Abbott, of Dutchess Co., N. Y., says: "I see in the new 'Cyc. Britannica,' the suggestion that it is best to make the passage leading to the honey boxes, but $^{3}/_{16}$ in. wide, so that the queen and drones may be excluded. What is your opinion?".... Coming from such high authority, I could wish it were only a suggestion, but it will be seen that it is advised without qualification. The exact language is this: "Before a super be placed in position, the crown-board should be removed, and a thin board, called an 'adapter,' substituted; this, in place of the round central hole, has near each side a long aperture $^{3}/_{16}$ in. wide, which gives passage to the workers, but not to the queens and drones, etc."....That there is an advantage in thus excluding the drones and queen, particularly the latter, from the surplus boxes, every practical bee-keeper will understand; but when, to secure this, he must be content with a less quantity of surplus honey, he will not be likely to adopt the advice. It is interesting to notice the changes that have been made in practice from time to time in this essential point of giving the bees needed access to boxes, and those who, like Mr. A., are desirous of beginning right, may study this experience to advantage. When the effort was first made to secure surplus honey in boxes, holes were bored through the top of box-hives, and boxes with corresponding holes placed over them. The tops of such hives were usually made of 1-inch lumber, and as the boxes were not supplied with pieces of guide-comb to attract the bees, they would enter them with great reluctance. The hindrance arising from the lack of free and more immediate access to the boxes, soon induced the use of lighter tops to the hives. Boxes with three holes within were adopted, fig. 3, and still others used boxes with slots cuts in them, as shown in the engraving, figure 4.

Fig. 3.—BOX WITH HOLES.

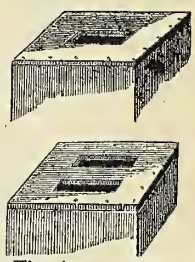


Fig. 4.—THE SLOTS.

Still later, as the different forms of movable frame hives were introduced, many omitted the honey-board entirely, placing the boxes directly over the frames, with only the thickness of the bottom of the box between. The ad-

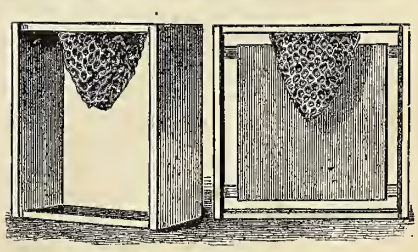


Fig. 5.—SECTION BOXES.

vantages to be gained were apparent, and practical bee-keepers everywhere soon availed themselves of them. Side-boxing hives were also devised, where the boxes could be arranged at the sides of the combs, with only the thickness of a piece of glass between, giving very free access to them (see fig. 3). Then followed the section boxes, the popular form of which is made with the top and bottom ¼ inch narrower than the sides, and nailed together, as shown in figure 5. It will be seen that if two or more of these boxes are placed together, there will be an opening between them of ¼ inch the entire length, figure 6. Each section is supplied with a piece of white comb, to attract the bees, and secure straight combs. This is the size of entrance that is used by the majority of bee-keepers, but after testing different sizes in thousands of instances, I find ¼ inch yet too small. In experimenting in this direction, P. H. Elwood and myself made our boxes by cutting a slot in both sides of each end-piece, in addition to the ¼ inch, as shown in

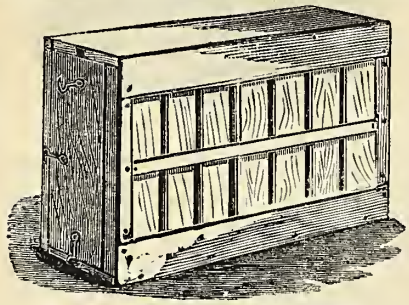


Fig. 6.—BOXES PLACED TOGETHER.

figure 7. and after testing it largely by the side of the ¼-inch entrance without the slot, found the larger passage to be much preferable. But the extra work in preparing the honey for market made this undesirable. Captain Hetherington, one of the most extensive and practical bee-keepers in the world, makes the top and bottom of his box but one inch wide, so that when placed together, there is a space of one inch between the boxes the entire length. I am at present using an entrance $^7/_{16}$ inch wide, and would prefer it larger rather than smaller. I am

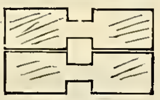


Fig. 7.

aware that the queen will occasionally enter the boxes and deposit some eggs, but in the practical workings of an apiary, this disadvantage is hardly worthy of mention, when the advantage of the larger entrance is estimated. I have tested these different methods in so many ways, and on so large a scale, and noted the results so carefully, that I feel justified in pronouncing the $^3/_{16}$ inch entrance referred to, to be entirely impracticable and undesirable, if the best results are to be attained.

## The "Grape Vine" Raspberry.

In a notice, in May last, of a Raspberry to which Mr. Wm. Holland, Plymouth, Ind., had sent out as "A New Raspberry," under the name of "Grape Vine," we quoted "The Evergreen," a Nursery paper published at Green Bay, Wis., as to its origin. "The Evergreen" stated that Mr. Holland purchased the plants he offered as the "Grape Vine Raspberry," of Phinney & Co., at Green Bay, Wis. This statement of the "Evergreen," Mr. Holland denies *in toto*, and with emphasis. He gives in full detail the manner in which he obtained the plants in question, which is in brief, as follows: Having had specimens of leaves and fruit of a raspberry he had never seen before, brought to him from the garden of Mr. John German, of Donaldson, Marshall Co., Ind., and learning that said German would trade these plants for apple trees, he, Holland, sent the required apple trees by his grandfather, who returned with the raspberry plants. As this account is given with reference to persons and dates so minutely, we have no doubt that this is the history of the method by which Mr. Holland came into possesion of the plant, to which he gave the name of "Grape Vine Raspberry."

**Cleaning Up.**—The season being practically ended, and the harvesting being finished, it will be a useful work to rake up the debris of the harvest fields, gather the rubbish in heaps, and burn it, together with the insects and seeds of weeds which it will contain. Potato-stalks thus disposed of, may take with them a part of the last brood of the Colorado beetle; and the rakings of wheat and corn fields will gather with them myriads of Hessian flies, Chinch bugs, flea beetles, and other insects, besides the spores of rust and the like. The cleaning up of fence rows will remove much rubbish that harbors vermin. A few bundles of corn-stalks, laid about the orchard, will attract mice, which may then be destroyed by means of poisoned corn-meal or grain steeped in a solution of Sugar of Lead. Cleaning around the trees will also prevent the harboring of mice and future damage, when the snow covers the ground. It is impossible to refer particularly to *every thing* that may be done, but it may be enough to suggest that much useful work in this way will be found during this month, if it is only looked for.

## When to Apply Manure.

The common practice among farmers is to make a general clearing of the yards and barn cellars once a year, either in the spring or fall. Either practice makes a heavy draft upon the teams, and has its disadvantages. If this work is done in the spring, it is when the ground is soft, and other work is exceedingly pressing. If the manure is drawn out in the fall, and dropped in heaps upon the field to be cultivated next season, there is more or less waste by leaching and by evaporation. There is a growing disposition among our intelligent farmers to apply manure directly to growing crops, or as near the time of planting and sowing as possible. It is felt that the sooner manure is put within reach of the roots of plants, the better for the crops and their owner. Manure is so much capital invested, and bears interest only as it is consumed in the soil.

The barn-cellar may be so managed as to manufacture and turn out fertilizers every month in the year, so that the farmer may suit his convenience in applying them to the soil. When manure is not wanted for cultivated crops, it is always safe to apply it to the grass crop, either in pastures or upon meadows after mowing. Top-dressing is growing in favor with our intelligent farmers. Grass pays better than almost any farm crop in the older States, and the spreading of compost, saves the necessity of frequent plowing and seeding. By top-dressing at any convenient season of the year, fields may be kept profitably in grass for an indefinite time.

## The Golden Eagle.—(*See First Page.*)

"It measured seven feet four inches from tip to tip of its wing," is read of less frequently now than formerly in the local papers, where the description of the shooting of a "Golden Eagle, by our fellow citizen, William Noakes, Esquire," is recorded. To be sure it was after all only "Bill Noakes" who shot the eagle. Why should he shoot him? Had he no eye for the beauty of his broad sweeps? had he no sense of the grandeur with which the bird soared, with scarce the movement of a wing, as he was filling the station for which he was created far better than the other biped, who, with one movement of his useless finger, sent the ball, and down came our grandest bird, a blood-draggled, lifeless and useless thing—but then "its wings spread over seven feet." Why should he shoot him? Why is it that everything that flies, no matter how rare, how grand, or how full of interest the creature when alive, or how worthless when dead, it must die. We say that the notices of eagle-shooting appear less frequently, for the good reason that eagles are less rarely shot. They are disappearing year by year, so that in time we shall only know of them, as we know of the Dodo, from stuffed species, and when these are destroyed, by pictures and a bone or two. Even now the Golden Eagle is seldom seen east of the Rocky Mountains and is rare everywhere. Its length is a little over 3 feet, its spread of wings about 7 feet. Its general color is dark-brown with a purplish gloss, while the neck and hinder part of the head are light brownish yellow, from which it gets its name of "golden." The tail consists of 12 broad feathers which the Indians prize very highly as personal ornaments, and who, before they had fire arms, could only procure these feathers with great difficulty and danger. This Eagle is remarkable for its long-sustained flight, moving for hours at a great height in grand circles without apparent effort. It darts from its lofty place with great precision and pounces upon its prey with unerring aim. Fawns, hares, and other small quadrupeds, with wild turkeys and other large birds are its chief food. It takes its own prey and does not, like the Bald Eagle, lay in wait to rob the more industrious Fish-hawk of its food, for which reason and others, Franklin is said to have regretted that this cowardly bird should have been chosen for the national emblem instead of the Golden Eagle. As this is found also in Europe, where it is called the Royal Eagle, it is probable that nothing "royal" could be tolerated by our patriotic forefathers. Whether sweeping through the upper air or standing upon some isolated peak it is a truly majestic bird. Our artist has represented him in this last-named position, in the picture which he calls the "Eagle's Throne." As here seen he may well be called the "King of Birds," and his air of majesty should be a sufficient safe-guard with all right minded persons; there should be a law to protect him from those lazy worthless fellows who disgrace the name of sportsman by shooting at everything living that wears fur or feathers.

## Editorial Correspondence. — Items from Notes by the Way.

### Dairying in Wisconsin.

*Beloit, Wis.*—The remarkable display of butter and cheese from Wisconsin and Northern Illinois, at the International Dairy Fair in N. Y., last December, was a surprise to many Eastern people, especially to some residents of the leading N. Y. dairy counties, whose products had long held the highest rank. It is safe to say that Northern Illinois and Southern and Eastern Wisconsin have the pasturage and other facilities for successfully competing with the entire dairy region of New York and Vermont. I came from Madison to this point by invitation of Mr. Clinton Babbitt, proprietor of the Hemdoka Stock Farm, and he and Mr. S. J. Goodwin aided me greatly in visiting sundry farms, etc. Mr. Goodwin now sells the milk of his own herd, delivering it to the consumers in Beloit, at 3 cts. per qt., up to Sept. 1st, and he finds this more profitable than making butter or cheese at the present prices. As he formerly took first premiums for the best butter, at St. Louis and elsewhere, and was called upon to address the State Convention, I give some notes gathered in conversation with him during our twenty miles ride about the country.

### S. J. Goodwin's Experience in Butter-Making.

His cows are mostly grade Jerseys, with some mixture of Shorthorn. The *milk-room*, a little below the ground surface, has the *ice-house* along the northern side. Against this, a lower space 28 inches high is constructed, with slats above for holding ice. In this space, the milk is placed in cans 20 inches high and 8 inches in diameter. These are set in galvanized iron pans, 4 inches deep. The melting ice drops down upon the covers and runs down over the sides into the pans, running over into drains when the pans are full. This keeps the temperature at about 50°, and the cream is 36 to 48 hours in rising. After churning, and working out the butter-milk thoroughly, he salts with ‡ ounce of salt to the pound for early use, and 1 ounce to the pound for butter to be kept to autumn and winter.

BUTTER A GREAT ABSORBENT OF ODORS.

Mr. Goodwin lays much stress upon keeping every thing neat about and in the vicinity of the butter and cream rooms. The hand is not allowed to come in contact with the butter during making, working, or packing. When his butter was selling in St. Louis, as "A No. 1," report came that a couple of firkins had fallen below the standard, owing to a little bad flavor. After considerable investigation, it was found that the cover to the wooden conduit or pipe that carried the buttermilk to the swine at a distance, did not fit quite tight, and the odor from some of the milk that had soured along the pipe, came into the milk-room, though so slightly as not to be perceived ordinarily. Attention to this, restored his butter to its accustomed rank. At another time, a light puff of smoke got into the milk-room, and deteriorated a batch of butter. In short,

any odors from any source, will be quickly absorbed hy the milk, cream, or hutter. Even so slight a cause as tbe urinating of a cow during milking, will affect tbe milk more or less by its absorption of the odor. How must it be when cows are milked in a filtby barn-yard or stable, where the air is rank with foul odors? Is it any wonder that so much of the hutter in market is despoiled of its natural delicious aroma? [The Manufacturers claim as one of the valuable features of the Perfect Milk Pail, described in our Premium List, No. 185, that the milk is so enclosed that it is not reacbed by any effluvia, to say nothing of its freedom from filtb.]

### Butter Dairy of Lucian Williams.

July 25th, we visited this place in the town of Harrison, Winnebago Co., Ill., where 100 cows are kept, mainly grade Durhams, about 30 of them being dry or near calving, and 70 yielding milk. We believe bc aims to have about 3 out of 5 of his cows come in during autumn. Tbe weather being dry, and no extra feed being given, tbe yield of milk was not very large. The tally on the black-board showed: night milking, 720 lbs. milk: morning, 625 lbs.—total for 24 hours, 1,345 lbs., or an average of 19 1/5 lbs. per cow—ahout 10 quarts. The milk-room is cooled by Prof. Wilkinson's process—that is, a passage-way constructed deep under grouud with an opening some 175 or 200 feet distant. The cool ground reduces the tempcrature of the air wbich rises into the milk-room. At the time of our visit, the thermometer inside the milk-room stood at 68°, while one outside in tbe sbade of a northern vestibule, stood at 80°. Here was a reduction of 12° without trouble or expense save the original construction of the underground passage. (It is claimed that hy having proper length and depth, and making the air-passage large enough to give ahundant cooling surface, a sufficient reduction of temperature for all ordinary dairy purposes can be secured at much less anuual expense tban is required to provide and care for tbe ice that is thus saved). Mr. Williams allows the milk to stand 36 to 48 hours, until it turns a little sour, before skimming. He churns every second day, using a large, simple barrel churn, turned by a single horse-power, revolving slowly, and the hutter is 1 to 1½ hour in coming, the temperature being between 52° and 55°. The buttermilk is drawn off, and plenty of water at 50° to 52° is poured in and worked with the butter. It then stands 15 minutes, when the water is drawn off, the butter removed to the working table, and tbe water and any remaining buttermilk are thoroughly worked out. Tben ¾ ounce to the pound of Higgins salt is well worked in. It stauds thus until the next churning day, or 45 to 48 bours, when a final, thorough working is given, and it is packed in firkins. Care is taken to have everytbing thoroughly neat, no band to touch the butter, and no odors from any source to enter the milk or butter room. We tested some firkins of different days' make, and chalked them A 1. The butter yield averages ahout 1 lh. to 25 lbs. of milk. He calculates on producing during the season, 200 lbs. of pork from tbe skim milk and buttermilk of each cow—including the pasturage and final corn feediug of tbe swinc.

### J. G. Winslow's Cheese Factory.

This is in the town of Shirland, Ill. Mr. Winslow resides in Beloit, Wis., 10 miles distant, hut gives close attention to his dairy farm, the cbeese factory being under the management of E. S. Kiser, who freely answered our inquiries, and showed the entire process. On the farm itself are 126 cows, mostly natives, of which 105 were in milk, receiving no feed except what they gatbered from the "wild pasture," as Mr. W. called bis fields—not very "wild," as this region has been settled up for a score of years or so, we believe, and the cheese produced, was any thing but "wild," as it was selling at 6 cents, while many were getting but 5 to 5½ cts. The yield of milk had ranged about 1,700 lbs. per day, in May and June, but was falling off in July, and expected to fall to 1,100 lbs. during the hot month of August, or only 5 to 6 quarts average per cow. Besides the bome-produced milk, Mr. W. receives at the factory all the milk offered, makes it into cheese, which the owners take at the factory and market it themselves. They also receive their proportion of tbe whey. The cbarge for making the cheese varies from 1¼ to 2 cts. per lh., according to tbe larger or smaller amount of milk furnished. Owing to tbc low price of cheese, farmers are bringing in much less milk this year than previously. Allowing 10 lbs. or 5 quarts of milk to the pound of cheesc, and this netting only 4 c. per lb., is not a very profitable business surely, and would uot be followed if the farmers had not the cows and pastures on band. Raising calves for tbc Western plains, even in competition witb Texas cattle, would seem to be quite as profitable, so far as the cows and their milk can be used for this purpose. But present prices are exceptionally low, and can nardly continue long. Either the consumption will be increased by the low rates, or enough will go out of the husiness, to diminish tbe supply and raise the market value. (It is a rule witb the more acute Long Island farmers, to put in a large area of cabbages, etc., in the season following a large yield and low rates, because these are just the years when the great majority, discouraged by the previous season's experience, will go into something else, and thus leave tbe way open for a scant yield and high rates. The frequent hints in this direction, given by the *American Agriculturist* in years past, have been adopted by many otbers, and witb gratifying results to our readers.)

PROCESS OF CHEESE-MAKING.

The evening's milk is cooled over night, and the *early* morning's milk is cooled until 8 o'clock, A. M. Tbey are then mixed and heated to 84°, and the rennet is added. After standing at 84° for about one hour to set, the beat is raised to 98°, and stands four to six hours, when the whey is drawn off and the curd taken to tbe press. 2½ pounds of salt are used to each 1,000 *pounds* of milk—Michigan pure white salt. The curd stands in the hoops under the press from 3 P. M. to 7 A. M., and is then removed to the packing room. Tbe temperature of this room is maintained at 70° and below, by free currents of air, the walls and roof being made of douhle boarding, witb eight inches of sawdust between .... The RENNETS used are the imported Bavarian, when obtainable, otherwise tbe best English. Tbese now cost 11 cents each. Tbey are put in whey some time in advance of use, more rennets being added from time to time, those exhausted being removed. About one average rennet answers for 2,000 lbs. of milk.... COLORING THE CHEESE.—Mr. Kiser prefers to make his own coloring matter, which he prepares hy using 2 lbs. of Aunatto (35 cents per lh.); 1 gallon of pure Rain Water; 1 lb. Potasb (Babbitts' pure); ½ lb. Sal-Soda; 2 oz. Saltpeter. This, after standing about eight days is ready for use—about one gill to each 1,000 *pounds* of milk.

### Osage Orange—How far North.

After examining many Osage Orange hedges in different parts of Illinois, some ten years ago, I came to the conclusion that tbis plant could not be depended upon furtber north than ahout the middle of tbe State, or at most not above an east and west line running fifty miles or so south of Chicago. But to-day I bave seen several vigorous Osage hedge lines, with few gaps, in Winnebago County, thirty-five miles further nortb than Chicago, or a hundred miles ahove the line previously fixed as the limit, in my own mind. Has cultivation, or the increased growth of forest trees, as wind breaks, modified the climate, or a better understanding of the proper treatment, made the difference—or are there local qualities of soil or otherwise in Winnebago County favoring tbe growth of the Osage? We will be pleased to have some of our readers in the two northern tiers of counties of Illinois and Iowa send to the *American Agriculturist* notes of their experience with this plant, as a reliable hedge, or their observation of it in their localities. Also any notes upon the Buckthorn and Honey Locust for the same purpose. I have seen some fine hedges of tbe Buckthorn here and there. In regard to the *Honey Locust*, we will be glad to hear from various localities, to enable us to fix the northern limit at which it may be safely used as a hedge plant, botb in the Eastern and Western States.

### A Simple Stack Protector.

Throughout the great western prairie regions, between Indiana and the Rocky Mountains, there are comparatively few harns for storing hay and grain. Lumber is too scarce and high, and stacking is resorted to for hay, and for grain when it is not threshed in the field or directly from the shook.

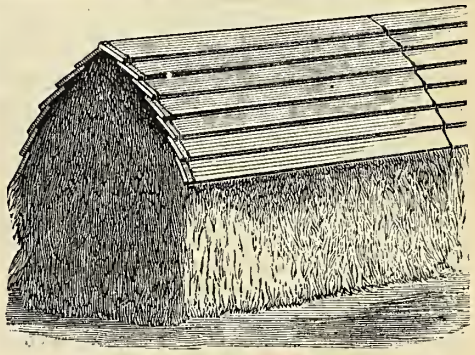


Fig. 1.—STACK WITH COVER.

Tbe stacks are most frequently long rectangular masses, instead of the cone tops generally seen at the East. We bave noticed some of tbese single stacks from 100 to 300 feet in length. Of course considerable hay and grain is lost by exposure to beating rains. Near Beloit, Wis., we saw bay stacks covered witb a simple arrangement of cheap boards that migbt be applied equally well to grain stacks, and we made a sketch, shown herewith, to illustrate tbe method. Fig. 1 sbows tbc stack as it appears covered. Fig. 2 is an enlarged sketch to show the boards and fastenings. The boards we examined were common rough pine boards, 12 or 13 feet long, and 10 to 12 inches wide, tbe edges lapping about an inch. To hold the boards in place, a wire, say No. 9, is run over the outside as shown, and bent down over the lower edge of each board so as to run close along the surface of the next board be-

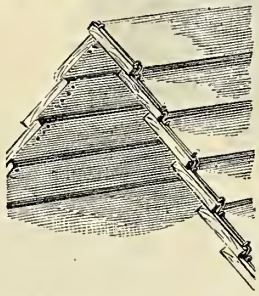


Fig. 2.—END, SHOWING FASTENING.

Fig. 3.

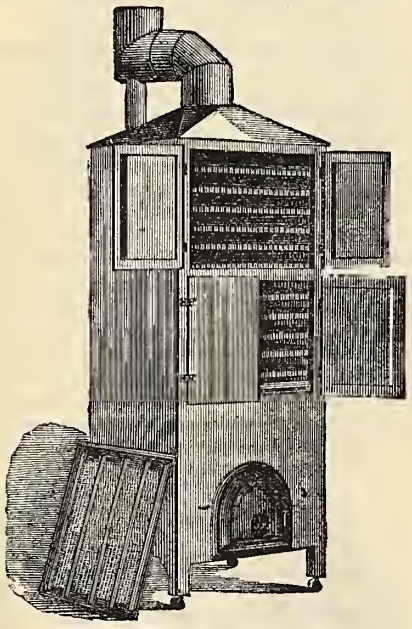
low. Iron staples are driven in as shown, one an inch or so above tbe lower edge of the top board; and another, just below the bend, into the next board below. Fig. 3 shows one of these staples of *exact diameter, size, and form.* Tbese appear to have been made of the same wire as that running over the boards. They can be bought for 2 to 4 cents a dozen. When the stack is to be used, the staples are drawn out, the same as tacks from a carpet, and the boards piled up for future use. Any rough, cheap boards will answer, and they can be used many years if of piuc or otber durahle wood. Though not absolutely water tight, such a covering will shed off most of the rain and snow storms, wbile the saving of hay or grain will cover the cost of the boards every year or two.

**The Potato Rot.**—Mr. "J. F. W.," Flushing, Long Island, brings us a number of potatoes with the inquiry: "What is tbe matter?" The trouble is a serious one, the true and destructive Potato Rot, caused by the parasite fungus *Peronospora infestans.* The fungus first attacks the foliage of the Potato plant, which is soon destroyed, when the fuugus descends through the stem and finally reaches the potatoes. Tbe first indication of tbe presence of the trouble is the wet, soft, *rot* with its accompanying disagreeable odor. The vines should be watched, and as soon as "struck" by the fungus—which is known by a frosty covering and rapid wilting and decay—the potatoes should be dug. In this way a crop may be saved which might

be entirely lost if the digging was put off for a week, or even less time. The fungus is of the same genus as the Grape Mildew, a description of which, with several illustrations, was given last month.

## Fruit Drying and Dryers—The Zimmerman.

The primitive method of drying fruit by exposure to the sun, has so many drawbacks that, even when all else goes on favorably, the long exposure required, causes the product to be dark colored and changed. A long exposure to a moderate heat, causes the sugar of fruits to turn into acids, and the first steps towards decay are taken, and these go on until the slow drying arrests them. In drying fruit in the sun, we have also a correspondingly strong light, which, it is well known, turns the cut surfaces of the whitest fruit to a gradually deepening brown, with a rapidity that varies with different fruits. Fruit thus exposed attracts multitudes of insects; besides the ever present flies, there come



THE ZIMMERMAN FRUIT DRYER.

bees, wasps, and other insects, the wasps in some cases devouring or carrying off considerable quantities, and thus causing loss. The idea of eating fruit thus exposed, is not a pleasant one, and careful persons keep off the insects by covers of muslin or other fabric, a protection which does not keep out another trouble, the dust. But there is a still greater difficulty; a large quantity of fruit is prepared for drying, and then comes a long storm, and if it does not actually rain, the atmosphere is so charged with moisture, that it can take up no more, and the fruit must be lost, or it must be brought into the kitchen—much to the discomfort of the family, and fires kept up to save it. All these difficulties may be overcome by building a properly constructed kiln, or drying house. But the operations are rarely on a scale large enough to warrant a special structure, and there have been numerous attempts to meet a general want by supplying portable dryers. The earlier machines of this kind had two great faults; firstly, they were of wood, and both clumsy and dangerous, and secondly, they were too low in proportion to their breadth, causing a great waste of fuel, and being less manageable. A change has been made in these respects, and the dryer of the present day, is a different affair from that of 15 or 20 years ago, not only in appearance, but in the products it turns out. We stated last month, that the "Zimmerman Fruit and Vegetable Dryer" appeared to be constructed upon correct principles; a subsequent trial more than confirms the opinion formed on a mere examination. This Dryer is made in several sizes; that shown in the engraving is No. 2, and best suited to general use. No. 1 is of half the capacity; No. 3 is of double the capacity, and only needed by those who dry on a large scale. The machine shown here is 6 feet high, 2 feet deep, and 26 inches wide. Below is a furnace or stove for the fuel; this has a door at the front, and the fire is managed without opening the chamber of the dryer. In the bottom are dampers to regulate the admission of air, which, entering, is heated by contact with the furnace, then passes among the fruit, etc., and out through a covered chimney at the top; thus there is a continuous upward current, which, in the larger dryers, is increased by so connecting the smoke pipe with the ventilating pipe, that the ascending current from the furnace helps the upward draft. Trays or racks of galvanized wire are provided to hold the fruit, etc., and these rest upon ledges placed at the sides, as shown in the engraving. The affair is readily portable, and may be used out-doors, or inside where it can be connected with a chimney. Experience proves, what an examination indicated, that this meets every requirement of a useful dryer, and it completely obviates all the difficulties that attend the drying of fruit in the open air. The "Zimmerman," by allowing the drying to go on in wet weather, prevents the great loss attendant upon the old method, while the exclusion of light, of flies and dust, joined to the rapidity with which drying is done, remove the other obstacles to the best results. This Dryer turns out a product so superior in appearance, in color, and cleanliness, as to astonish those who have never seen fruit properly dried, and so unlike the common sun-dried fruit, as to warrant the different name that the "Zimmerman Dryer and Baker Co." have given to the product of their machines, *i. e.* "Evaporated Fruit." They claim that fruit thus prepared, is worth in the market at least double that dried in the ordinary way; they give directions for attractive packing, and furnish a stencil plate with which to mark the boxes: "Zimmerman's Evaporated Fruit." Not only fruits, but vegetables and other articles properly preserved by drying, are much superior when treated in this Dryer. Our experience, aside from fruits, is confined to sweet corn. Every housekeeper knows the great readiness with which green corn becomes sour, and how difficult it is in the most successful sun-drying, to prevent some acidity. With this Dryer, the corn is, in a short time, put beyond the possibility of any change. By a slight change in the interior arrangement, the Dryer is readily converted into a baker or oven, in which bread, pies, cakes, poultry and meats may be baked in large quantities, and in a superior manner. While we have not had occasion to test this, we have no doubt that wholesale cooking of this kind may be done in a satisfactory manner, and with a very small consumption of fuel. But our interest in the machine is as a Dryer, and as such it would be difficult to improve it; the descriptive pamphlets point out several other uses to which it may be put when not employed as a Dryer.

## Splitting Rails and Posts.

It is now the best season for cutting timber, as many farmers have learned by experience. The seasoning process is much more perfect, because there is no layer of growing sap-wood. Insects do not work in autumn cut timber, as in that cut in the spring or summer, and the wood does not "powder post." It is best to split the logs into rails or posts at once, and not wait until the timber has become seasoned in the log. The logs will split easier, the rails will season quicker, and be more durable. The splitting of rails is a work that requires good judgment, otherwise much timber will be wasted. Some persons will make rails that are large at one end, and gradually tapering to a sliver at the other, and are worthless for fencing purposes. Set the wedge at the top end of the log, after first "checking" with the axe, by driving with the beetle, so as to divide the log into two equal parts. Now drive in two wedges, as shown at figure 1, both at the same time. Next use a wooden wedge or "glut," either in the end of the log, or on the top a little back from the end. After halving the log, quarter it, and then proceed on the principle, that a rail should be about 3x3 inches. The size of the log will determine the number of rails to be made. For example, in figure 2, six rails are made by first halving the quarter, then splitting off the inner part half way from the center, and afterwards halving the outer part. Should the logs be larger, twelve rails are made from each quarter, as shown in figure 3,—or 48 rails from the log. In splitting logs into posts, a broad and smooth side is to be sought. Suppose we have the same sized log as the one split into 48 rails, or 12 rails per quarter, figure 3,—the splitting would be, in each case, from the center to outside with cross splitting midway. The number of posts would be determined by the size of the posts desired. If the logs are of the size of the quarter, shown in figure 2, there is no cross splitting, unless a small piece for a stake is taken from the center. When the logs are only large enough for four posts, and a broad surface is desired, as in bar posts, they may be split by first "slabbing," and afterwards splitting through the center; all the split surfaces to be parallel. If still smaller, three posts can be made, by splitting off two slabs on opposite sides, as in the case above, and not divide the heart, and finally when the log will make only two, it can be halved.

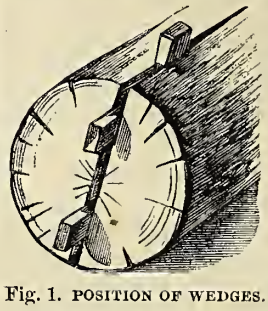


Fig. 1. POSITION OF WEDGES.

## A Mixture of Grasses.

It is a well known fact that mixed crops are more productive than those sown singly. Thus one acre sown to oats and barley, or oats and peas, will yield as much, or nearly as much, as two acres sown singly to either crop. So in grass lands, Clover and Timothy, mixed, will produce nearly twice as much as if the ground were seeded to one of these alone. It is also a well known fact, that our grass lands are not so productive as we could wish, and the reason of this may be, and probably is, that we have but one or two kinds of herbage in them. If we examine an old, thick, luxuriant sod, in a pasture or a meadow, it will be found to consist of a variety of grasses and other plants, each of which seems to vie with the other in occupying the soil for itself. This is the result of natural seeding, and gives us a lesson which we may well profit by. There is another reason why grasses should be mixed; this is that the periods of greatest vigor of different varieties occur at different times. We can therefore secure a succession of herbage for a long season by sowing a variety of grass seeds.

To give examples, we might mention that a mixture of Orchard Grass, Red Clover, Timothy, and Kentucky Blue-Grass will produce a pasture which will be in good condition for grazing from April, when the first mentioned grass is in fine condition, up to October, when the last is in its most vigorous state; the Clover and Timothy serving to fill up the interval. With one of these alone there would be but one month of good herbage, and that coarse if given

Fig. 2.

Fig. 3.

the whole field to itself. In like manner, a quantity of Rye Grass added to a meadow would help to furnish a quick-growing herbage which rapidly and constantly recuperates after cutting or eating down.

The fact is, that we make much less of our advantages in regard to our meadows and pastures than we might. On the average, seven acres of pasture are required to keep one cow through the pasturing season, when by the best management one acre, or at the most two, ought to be sufficient. This is due in great measure to the prevalent fashion of seeding down with but one variety of grass, with clover added sometimes, a fashion which, hereafter, experience teaches us should be more honored in the breach than in the observance.

## A Fat Shorthorn Heifer.

One of the most remarkable animals of the Shorthorn breed, and one that deserves to be remembered in history along with the famous "ox that travelled," nearly a century ago, is the heifer "Icicle," bred by Mr. R. Stratton, an English breeder. This animal, of which we give a life-like portrait, from a photograph taken some time ago for the "Agricultural Gazette" (London), met with extraordinary success as a prize-taker. She finished her career in this direction at a fat cattle exhibition, held by the Smithfield Cattle Club, which is really a show of butchers' beeves. A glance at the portrait given will serve to show that this heifer was a most exemplary representative at an exhibition of the best beef-producing race of animals we possess. At the exhibition referred to, this heifer swept all the prizes—as the best Shorthorn heifer; the best Shorthorn female; the $525 prize as the best of any breed; another $525 prize as the best animal, and a $525 prize offered by a noted feeding-cake manufacturing firm, for the best animal. The latter prize is a curious instance of reciprocal benefit, for doubtless in the feeding of this animal during her career as a prize winner, the quantity of feeding-cake consumed by her must have created quite a demand upon the resources of this firm. The wonderful breadth of loin, and width and depth of front of this heifer are well shown in this engraving, and a make up of this character is not often surpassed even by an ox. The example may serve to show of what the Shorthorn is capable in the hands of a skillful feeder, and it is only when such an animal is offered for public exhibition that an opportunity is given to learn this; for it is rarely that a good Shorthorn is fed for the butcher, the best being reserved for breeding, which is much more profitable. Last month we gave a portrait of a Shorthorn dairy cow. Opinions differ as to whether or not it is possible to find in one breed, animals that may be made profitable both in the dairy and as beef. It is possible that had "Icicle" been bred from (she was fatted as a non-breeder), she might not have made a profitable dairy cow. There are poor cows in even the best of dairy breeds. It is not long since the public was astonished to hear, from the best authority, that it was very easy to pick up a carload of "worthless brutes" among the Herd Register Jerseys; and it may easily happen that among the Shorthorn cows, there may be many that will run to meat instead of to milk But either way, the animal brings a handsome profit to her owner, and this qualification is what mainly gives a Shorthorn a surpassing value over other breeds.

THE SHORTHORN HEIFER "ICICLE."

CATTLE DISEASES.—The reports of the condition of live stock, periodically published by the Agricultural Department, at Washington, have never been free from serious objection, on account of the loose manner of naming diseases. Such general terms as "murrain," "foot disease," and other indefinite and meaningless names, are taken from correspondents, who unfortunately use the local and popular terms, which are published just as they are received. Heretofore no harm has resulted, excepting to still further popularize wrong and unmeaning terms, because intelligent readers understood the facts of the case. But now very serious harm is done. These reports are eagerly seized upon in Europe, and distorted and twisted so as to spread an impression abroad that our cattle are suffering from the worst of contagious diseases. Thus an English paper declares our commonly-used word "murrain," to mean Foot and Mouth Disease, or Epizootic Aphtha, an alarming and destructive infectious disease, of which not one suspicious, much less authenticated case, has been known, or exists in America. So, our common Foot Rot of sheep, which is not the malignant type, but a disease that is easily cured, is declared also to be the dreaded Foot and Mouth Disease among the sheep. The English Privy Council then orders the slaughter of imported American cattle and sheep, and thus the looseness and stupidity of our Agricultural Department work to the injury of American farmers, and have no doubt caused them in the past year, a greater loss than can be offset by any good the Department has done during all the combined years of its superfluous existence.

## Suffolk Swine.

The most profitable pig is that which will make what is known as the "market pig." This is a small animal, which weighs 100 pounds, or somewhat over, at the age of 4 or 5 months. We have at least three kinds of swine that will make good market pigs: the Berkshire, the Essex, and the Suffolk. The first and second are black; the last is white—a thin-skinned, fine-haired, small-boned, well-formed animal, with little offal, easily fattened, and producing meat well mixed with fat and lean. A four or five months old Suffolk pig can not be surpassed for excellence of meat and profitableness of feeding by any other breed, although the Berkshire will at least equal it, but it is black, and although handsome in its figure, and excellent in its meat, yet its color is not popular with many. The form of the Suffolk is well shown in the illustration given herewith; it is a compactly built animal, upon a foundation of fine, small bone, and no other pig will make more meat in the first few months of its life, from the same amount of food. July pigs, fed upon milk, with ground corn and oats, or with barley meal and boiled potatoes, may easily be made to dress 120 pounds at Christmas, and at that season there is always a brisk demand for such pork—indeed, there is no season of the year at which such pigs are not in demand, and the fact that the Suffolk is a quick and certain breeder, and will raise two litters in a year, is an additional point in its favor. Just now, when farmers have to consider very closely how they can turn their business to the best account, and especially how they can best dispose of surplus milk, which meets but a very poor sale, it may be well to figure up the profit of producing market pigs, either for sale as fresh pork or for light bacon. An average of one gallon of skimmed milk and 3 pounds of meal, fed daily to a young Suffolk pig for 120 days, will make 120 pounds of pork. If the pork is worth only 5 cents a pound, there is profit in it, but a better price than this can usually be obtained, and generally the better supply of such meat as this, the better sale there is for it. When a desirable thing is not offered in the market, there are no inquiries for it, and, as a rule, the largest consumption has grown out of an abundant supply. The supply frequently creates the demand, and always in the case of choice articles of food, of which the consumption is generally a little in advance of the offerings, and grows through the facility of procuring the supply. The few farmers who cater to the needs of the public in special articles, find the business profitable; there is room for more farmers of this kind, and, among such articles, there is none that meets a readier sale than milk-fed, sweet, wholesome, young pork. There is perhaps no article of animal food about which people are more careful than pork; intelligent persons object, and justly to "promiscuous pig," knowing the possibility of danger from such food. In every large place are persons fond of what the market reports call "hog products," and who, could they be assured that the pig had been properly fed and kept before it became pork, would pay a high price to be able to enjoy it.

A SUFFOLK PIG.

## A House, Barn, or Shop Elevator.

An elevator may be made the means of saving much labor and many weary steps up and down stairs. To fit one into a house, barn, or workshop, is very little trouble. A well needs to be cut out and boarded up. Suspension pulleys are fixed in a strong beam at the top, and guiding pulleys to carry the rope at the bottom. These are shown at figure 1 in the accompanying illustrations. A box, or closet, without a front, is made to fit the well loosely, and with guiding rollers of rubber fixed in springs (figure 2), to prevent noisy rattling as it is drawn up or down. The weight of the box is balanced by means of a plate of cast iron hung over a pulley at the top, and which slides up and down in wooden grooves made for the purpose (fig.3). For light weights, such as are usual in dwelling houses, no mechanical aids for hoisting are needed; but in workshops or barns, where heavier loads are to be raised, a hoisting-wheel and endless-rope should be provided as shown at figure 4. The elevator-rope is wound upon the axle, and the hoisting wheel should be somewhat larger than the elevator box, for convenience in working the wheel rope.

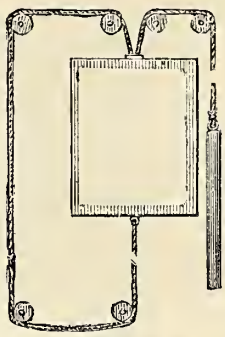


Fig. 1.—SUSPENSION AND GUIDING PULLEYS.

## Among the Farmers.—No. 45.

BY ONE OF THEM.

It is not often that business or pleasure takes me so far from home now-a-days as an errand I had, just after writing my last letter to the *American Agriculturist*, which necessitated a trip to Kentucky. It is often pleasant in travelling to pass over unfamiliar sections of country, and so I went

### Through Western Pennsylvania

planning to have daylight after passing Harrisburg, going to Pittsburgh by the Central Railroad. I had no reason to be disappointed in the appearance of the country — the lack of thrift, the wide-spread wilderness, the few evidences of good farming, good crops, good cattle, or even good houses—for it is a section about which we know little, simply because there is little to know. Yet the lack, to a New England man (though a Pennsylvanian born), does not seem to be in the soil, and I do not believe it is in the people, but in the *concatenation of circumstances*. I suggest this partly because I would not hurt anybody's feelings, for all admit we are creatures of circumstances, and partly because I think the people of any section can make their own circumstances if they have a mind to. I had little time for the wonders of Pittsburgh. Here Pennsylvanian energy, industry, and genius shows itself, and when the new smoke-consuming process is fairly introduced, it will be a grief to many that they did not see this city of iron, and glass, and cinders, enveloped in its sombre mantle, which is verily supported by pillars of cloud by day and of fire by night. That time is surely coming, and then only the coke furnaces in the surrounding country will give an indication of the grand smokiness which ever lies upon the city. Notwithstanding the clatter and hum, and the all-pervading presence of *industry*, everybody seemed to feel as if Pittsburgh was only the closed and temporarily tranquil crater of a volcano, ready at any favorable moment to burst into activity, subvert law and order, and again give up the property and lives of its citizens to a ravening mob, which may rule or ruin for a week. The reason is that the public men are trimmers, and the Courts and the Legislature are afraid of the votes of the mob. It is high time that the farmers looked to the honor and reputation of their State.

Fig. 2.

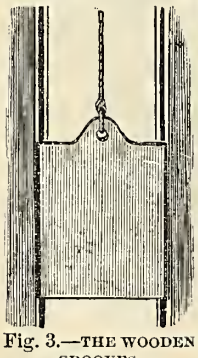
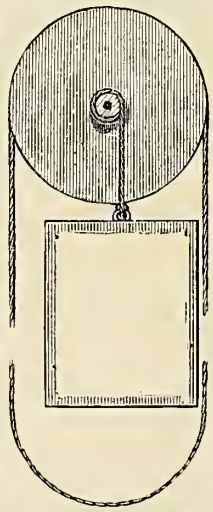


Fig. 3.—THE WOODEN GROOVES.

I never saw before the spot where the Alleghany and Monongahela, the one clear and the other muddy, mingle their waters and form the noble Ohio, the very mention of which suggests steamboats. It is a matter of never-ceasing wonder what all the steamboats find to do. On the Western rivers there seems to be a commerce like that upon the ocean, and it is so all the way from Pittsburgh and St. Paul—and I don't know how far up the Missouri—down to New Orleans. One is fairly confused by the number of steamboats. They have, too, a way of huddling, very different from boats at the East, where we have permanent docks. They remind one of bevys of school girls with their arms around one another's necks.

To pass across the Virginia "pan-handle," and through Central Ohio to Cincinnati, was a more than all-night's ride. I had not been here since the Tyler-Davidson monument was erected, and was very much impressed by it, and wonder if it has ever been described in the *American Agriculturist*. Let me briefly say—it represents a benign, angelic form, standing upon a lofty pedestal, with outstretched hands, wide apart, from each of which falls a constant and gentle shower of rain drops. The pedestal rises out of a basin of water. Grouped around and near the base of the pedestal are various figures or groups. One represents a fireman, another a maiden giving a cup of water to an old man, another a mother and group of children stepping down to take a bath; but by far the most touching is that of a farmer standing, as it were, among implements for which we may suppose he has no use on account of the drouth—with outstretched hands and upturned face, receiving upon them the blessed rain. There is a prayer and a poem in that man's face—gratitude to the All-giver; relief from despondency if not despair, and hope for the future. How many farmers have gone through this experience? Still the rain comes down at the fountain, and there the thirsty go to drink. And after all, what a poor showing it is to represent the blessings of the rain. We cannot see in the bronze the clover heads draw up, the corn leaves expand, the sward grow verdant. The ducks do not shake the drops from their feathers, and manifest their wild delight, and we do not witness parched and wilted nature revive and worship. Nevertheless, it is a grand work of art, bearing the relation, of course, that art always must to nature. A poem in bronze, which will stand teaching its lessons of purity and gratitude, turning the thoughts of thousands to the source of all our blessings, perhaps, for a thousand years.



4.—HOISTING WHEEL AND ENDLESS ROPE.

### From Ohio to Kentucky

is a great change. The street car carries you across upon a few wires, stretched from one side of the river to the other, letting your peer down into the funnels of the steamers as you pass. Every thing looks unthrifty. The depot wretched, the people slouchy, negroes abundant. What reason there is for any such difference I can only imagine. Taxes are probably fully fifty per cent lower. Means of communication just the same. We go through a poor country for many miles as we follow up the course of the Licking River until we leave it, running towards Cynthiana, and enter

### The Famous Blue-Grass Region.

My errand, so far as my trip into Kentucky was concerned, took me to Paris, Millersburg, Lexington, and Frankfort, and I had little time to visit the famous farms and herds, or study the agriculture. Still, there was much to be seen, and I was impressed by it as one of the best farming regions I ever visited. The fine, clayey, calcareous soil produces most excellent pasturage for ten months of the year, giving abundant feed for the cattle. In fact the cattle pasture throughout the year, but provision has to be made for extra feed for two or three months. Near Paris the weather has been very dry, and the hill sides were so brown and dried that I was surprised to see the cattle browsing all over them, and at evening the cows came home with full udders, sleek and fine, as if they had lacked nothing; and the yearling mules and colts looked as big as two-year-olds, though they had been fed only a little corn, perhaps, for a short time in winter.

The corn fields looked very well, many of them exceedingly even. Yet the whole manuring consisted of turning under a Blue-Grass sod. The spring was cold and wet, and much corn had to be replanted, consequently fully half the crop was no farther advanced than with us, yet there seemed to to be no doubt about its ripening before frosts.

Such a wheat crop as had just been harvested was hardly ever known before. Railroad storehouses were filled up with it, and every freight car pressed into use to get it to market. The farmers were feeling very happy over both the crop and the prices. Where manure is used at all it is used for the wheat crop, but I inferred that little is saved and little used for any purpose.

This region is peculiarly adapted to grazing, and the numerous herds of Shorthorns showed a size and evenness which we rarely see at the East. I saw some excellent Jerseys, too. The Blue-Grass does as well for them as for the beef breeds. Mr. McClintock's Jerseys, at Millersburg, looked exceedingly well, and yielded well, but the small but choice herd of Mr. Frank Chinn, of Frankfort, was a surprise. He has some excellent cows of the stock of Mr. Hoyt, of Patterson, N.Y., among which a two-year-old heifer of his own breeding is yielding 4 gallons of milk a day, which is certainly remarkable, though her dam is a 20-quart cow. At one of Fowler's sales, in Philadelphia, Mr. Chinn bought a very pretty cow, for which, considering that she was much used up by the voyage, and that many people thought she would never be any better, he paid a high price. She is now well, giving a great mess of milk, which is very rich, and the cow herself one of the most beautiful Jerseys I ever saw.

### Kentucky as a Dairy State.

This portion of Kentucky seems to be particularly adapted to dairying. Communication with the great markets is very easy. The winters are so mild that grass-butter, yellow without coloring, could be produced the year round. Cool springs abound—at least, occur not infrequently. Ice is generally formed in sufficient quantities for home consumption, and is otherwise very easily obtained, either by water or by rail; I found the greatest abundance of it everywhere, and noticed that it was used without stint.

Blue-Grass seems to be the prevailing grass; it crowds out almost everything else, and forms a close sod, such as we rarely see at the East, except where a variety of grasses are growing together. This grass is no doubt very fattening, as is demonstrated by the Ohio and Kentucky cattle, which are fed and may be fattened upon it without a bite of grain; and it may be a question whether it is equally good for butter production.—That it is, is in part practically demonstrated by the Jersey breeders of Kentucky, whose butter certainly is excellent, and produced abundantly. Still there was a suspicion in my mind that the Jerseys carried too much flesh, and that those bred on the Blue-Grass showed a faulty tendency to beefiness. This may not be, and it is not fatal to butter or milk production. No doubt there are many individual cows, I have known several such, which, though excellent feeders, could not be kept in fair flesh while milking, but ran down on the best feed to mere racks of bones. This is the style of cow for the Blue-Grass region, but they have got to be bred, and such a breed would be invaluable anywhere.

I have assumed that the Blue-Grass sward was

altogether, or almost entirely, of this one speeies of grass. This is on y an assumption. I eould not see any other abundant species, but it was no time to examiue it—half burned up, and, though somewhat green at the root, quite brown above. Throughout this part of the country we eall it June grass—and that name is certainly appropriate, for it blossoms in June, and at that time is most conspieuous, being soon, in most of our fields, overtopped by other grasses. The appropriateness of the name it bears in Kentueky was never elear to me, perhaps because I have never seen it in the early spring, or when starting fresh, and when it was the prevailing vegetation over eonsiderable areas. At that season it may look very blue.

### The "Alphea" Family of Jerseys.

The eows that I went West to purehase were descendants of the famous old eow "Alphea," bred by Col. R. M. Hoe. There is some evidenee to believe that as a butter eow Alphea never had an equal in this eountry, or perhaps in any other. While she was giving 22 quarts of milk a day, 18 quarts of this milk mixed yielded 3 pounds of butter time after time. During the summer she fell off gradually to 20 quarts, and the 18 quarts yielded still the same amount. The reason why only 18 quarts of her milk were ehurned was that the ehurn in use would hold no more. The churning and measurement were done by Mr. Geo. W. Harris, Superintendent of Brightside Farm, who was my informant. I think this yield has never before been equalled, but, for the reason that it was hard to believe, and as former trials gave some 15 or 16 lbs. of butter a week, the eow has had only that mueh eredit, while the fame of yielding 22 to 24 lbs., per week, was eertainly her due. Now that one of her grand-daughters has been yielding 22 lbs., and 20 lbs. months after ealving, it should eertainly be told to the eredit of the family.

### Stanehions for Cows.

An allusion whieh I made to stanehions in the February number, followed as it was by a deseription of Mr. S. J. Sharpless' new stables in the May number, has brought the *American Agriculturist* Editors considerable correspondence. One writer asks, 1st—How high the sill should be, in whieh the stanehions are set.—It ean hardly be too low, 4 to 6 inches is about right. 2d—How far apart the stanchions should be when closed.—Just so that the eow's neek will not be squeezed, and that her head ean not slip out; 8 inehes is the usual width, but it is well to be able to set the permanent stanehion closer, or farther from the working one, aeeording to eireumstanees. To aeeomplish this, a very eonvenient way is to have the sill made of two one-inch boards, the 2x4 stanchions or heavier ones if necessary, being held in plaee by oak pins. Thus several holes being bored in the sill and top pieee, or in these and the stanchion also, the adjustment may be made to the neeks of different cows. Other inquiries will be answered by eareful perusal of the artiele referred to, May number, page 180.

**The Secret of Success in Hard Times.**—An English Agricultural Journal makes a pertinent remark to the effeet that, "if a eareful inquiry were made, it would be found that the farmers who are most suecessfully weathering the storm of adversity in that country, are those who have kept their farms up to a high state of fertility, and those who are sinking, are ehiefly the poor farmers." It is so in every industry, and in all eireumstanees "the best man wins." The farmer whose fields are well cultivated, whose eattle are well seleeted and well kept, whose costly maehines are earefully used and proteeted, whose tools are always in good working order, whose system is one of order, and regularity, and whose habits are economieal and frugal, is the one who suffers least from unfavorable weather, from insect pests, and from unfavorable markets. Having produee of good quality, and being in the market in good season, he sells at the best priees, or being forehanded, he is able to hold his produce or stoek until he is willing to sell. Moreover he is not in the hands of the usurer, and has not to pay 10 or 12 per eent per anuum upon borrowed moneys.

## How to Build a Small Pier or River Wall.

A location on a river, shore, or lake front is very desirable. Boating is a most healthful and de

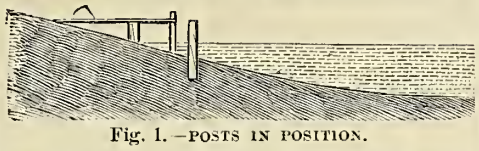


Fig. 1.—POSTS IN POSITION.

lightful exercise, and bathing, in the warm season, is one of the many attractions of a water front. Where boats are kept, there should be facilities for getting to the water with ease and comfort, and a pier or river wall, with landing, offers the greatest eonvenienee. A light pier may be built very eheaply and easily, and without working in the water, in the following manner: A sufficient number of stout eedar or oak posts are proeured, of the length neeessary to reaeh a solid foundation, and at least a foot above high water mark; generally, 5 to 10 feet will be found sufficient. Two posts opposite to, and 6 feet distant from eaeh other, are driven a few feet from the dry bank, at low water, and other posts are driven in the same manner down to low water-mark( fig. 1). Side-strips of 2 by 6 are spiked with half-ineh spikes to the posts, flush with the top, whieh should be sawed off square. Cross-pieees of the same size are spiked inside of these to the posts, and to the side-pieees where needed. These support the flooring plank, whieh should be 2 inehes thiek. If neeessary, a temporary prop of plank may be used to support the end of the plank,as shown. When low water is reaehed, the pier should be run out 10 or 20 feet to deep water. This is done by pushing out two or three planks plaeed upon each other 6 feet from the end of the pier already built, and weighting the other ends by rolling a barrel of sand upon them. A working-stage may be thus made, upon whieh the men may stand while driving the posts and fitting the side and cross timbers. When working at the part

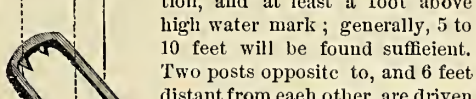


Fig. 3.—POSTS AND SIDE-PIECES.

above low water, planks are laid upon the mud, and tressels are used for a stage to stand upon while driving the posts. Or a contrivanee made, as shown at figure 2, of strong iron bar, may be used to elasp the posts, and hold a bloek, whieh may be struck with a maul, to drive the posts until they are low enough to reaeh the top conveniently. The ring is made somewhat oval, so that it will easily slip over the post when level, but will bind when inelined; the ring is furnished with one or two stout points at the baek part, by which its holding power is greatly inereased. As the post is driven down, the ring may be slipped up and fastened again for use. The posts need not be driven down further than will give a solid footing; two feet will generally be sufficient to find a good bearing for the small weight to be carried. They need not be sharpened at the

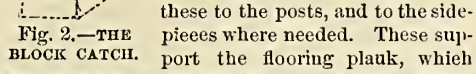


Fig. 4.—SLOPING LANDING STAGE.

lower end. Being plaeed in double rows and well conneeted together by side and eross timbers, there is no side thrust to provide against, and only the sinking weight to sustain. The cost of a pier of this kind, with lumber at 2 cents a foot, board measure, will be about one dollar the running foot. As the work progresses, the posts and side-pieces appear as shown at figure 3. When the pier is built out far enough, a landing-stage is fixed to the end, sloping to the bottom, as shown at figure 4. Safe

Fig. 2.—THE BLOCK CATCH.

footing upon this stage is secured by spiking cross-cleats across the planks, as shown in the engraving.

A river wall for the protection of a bank, and a landing as well, may be made by driving posts sharpened at the end,and the large end downwards, so as to take a firm hold of the earth, leaving only one foot above the surface. Cross-pieces are spiked to the posts, and the spaces between them are filled with fine brush, to arrest the current of water and cause a deposit of sand or mud. Planks are spiked over the cross pieces, for a floor, and to give secure footing on these sloping planks, laths one inch thick and 2 inches wide, are nailed every 18 inches. The floor should be carried a few feet below low

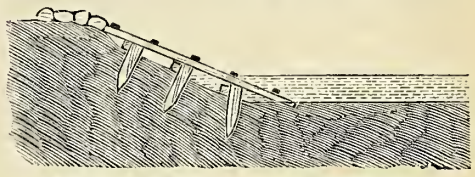
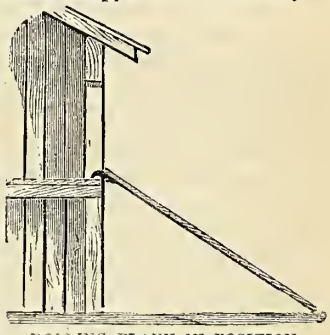


Fig. 5.—SECTION OF WALL PROTECTION.

water, and a short landing pier be made to deep water in the manner above described. The method of laying the wall is shown at the above figure.

## Rolling Planks for Machines.

Agricultural machines should be stored in a dry clean place. The barn floor is a very poor place for them, so is an open shed where fowls roost. A roomy floor over a bay in the barn, or a second story over a stable, or over an open shed, is an exeellent place of stowage for valuable implements and tools. There they may be kept clean, dry, and in good order. But means must be provided to get the machines to such an upper floor. This may be done by procuring two strong planks, a foot wide, furnished at one end with iron claws, as shown in the engraving. These planks are laid from the door-way on the floor, where they are secured by the



ROLLING PLANK IN POSITION.

claws, to the ground, and furnish a track upon which drills, mowers, reapers, sulky plows, cultivators, and other wheel machines may be easily drawn up with blocks and tackle, or a rope and pulley, by two men. Implements without wheels, such as plows, may be hoisted, or drawn upon these planks upon a plow sled, such as is described elsewhere. The planks should be planed smooth, and when not in use should be stowed away with the machines. These planks will be found useful for many other purposes, especially in loading and unloading heavy articles on, or off of, wagons and other vehicles.

**Late Sown Crops.**—Some farmers have practised sowing rye for green soiling in spring as late in the fall as the ground remains unfrozen. This we believe to be a mistake, and have abandoned it after a trial of a few years. These late sown crops make a poor growth, have weak roots and weaker tops, and are greatly damaged by the frosts of winter and the alternate freezings, and thawings of spring. Consequently there is a very weak growth although the seeding may have been heavy, and there is an unprofitable yield of fodder. The past spring three acres of rye, sown in the previous August, supplied fourteen cows with ample fodder for four weeks, while three acres sown in October, with a double allowance of seed, yielded only one week's feeding. It was the same with oats sown in the spring, the early sowing on fall plowed ground yielded three times as much fodder as the late sowings upon spring plowed land. There was something in the season, and the late dry weather had some effect, but the principle involved, in that early spring sowing is the best, cannot be denied or

ignored without loss. Any ground in the climate of New York that is not sown on the first of October, had better be fall fallowed and sown in the spring; unless there is some very excellent reason for the departure from this path of wisdom.

## Lime and Lime Kilns.

The periodical use of lime as a fertilizer is necessary to good culture. In the best cultivated parts of the country, lime is used once in every rotation of five crops, the usual rotation being two years grass, corn, oats, wheat, or rye, seeded to grass and clover again. The lime is applied to the land when it is plowed for the fall grain, and is harrowed in before the seed is drilled, or it is harrowed in with the seed, sown broadcast. The quantity used is from 40 to 50 bushels per acre. The effect of lime is both mechanical and chemical; it opens

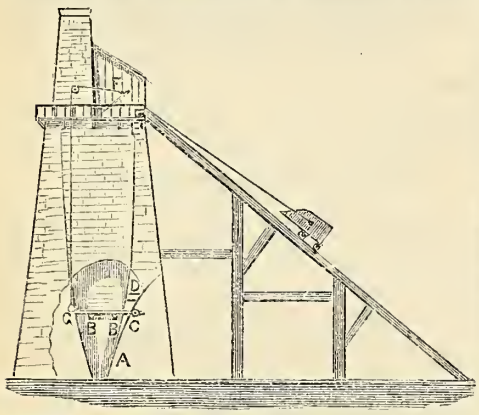



Fig.1. IMPROVED LIME KILN WITH ELEVATED TRACK.

and loosens heavy clays, and consolidates light, loose, sandy, or peaty vegetable soils; it has the effect of liberating potash from the soil, and of decomposing inert organic matter, and redueing it to an available condition. But while it is beneficial, it can not be used alone without exhausting the soil of its fertile properties. This is evident from what has been said of its character; at least this is true, so far as regards its effects beyond affording directly to the crops any lime that they may appropriate from the supply thus given. All the benefits received beyond this is a direct draft on the natural stores of the soil. It is, therefore necessary to good agriculture, that either a thrifty clover sod should be plowed under, at least once in the rotation, or that a liberal dressing of manure be given, or both of these. In those localities where the benefits to be derived from the skillful use of lime are best known and appreciated, this method is practised; a heavy sod being plowed under, after having been pastured one year, for the corn, and a good coating of manure being given when the land is plowed for fall grain. Under such treatment, the soil is able to maintain itself and return profitable crops. It is not where this course is pursued that complaints are prevalent of the unprofitableness of farming. The use of lime is spreading gradually into the Western States, where the competition of the still farther and fresher western fields is being severely felt. The experience of eastern farmers is now being repeated in what were once the Western States, and every appliance of scientific and thorough agriculture is found to be needed to maintain those western farmers in the close contest for a living. This is evident from the fact that we have inquiries from Ohio and Illinois, in regard to the use of lime and the structure of permanent lime kilns. Several illustrations and descriptions have already been given in the *American Agriculturist* (September, 1871, and February, 1875,) of both temporary and permanent kilns, and we now give another, suitable for use under circumstances where those are not available. This kiln (fig. 1) is intended to stand upon level ground, and is furnished with a sloping track, upon which self-dumping cars containing fuel or lime may be drawn up by horse-power with a rope and pulleys. The body of the kiln may be 20 feet square at the bottom, and 30 feet high, with a flue above the stack of 10 to 20 feet. The stack may be built of stone or brick, but should be lined with fire-brick or refractory sand-stone. At fig. 1 is given a side view with the elevated track, under which are the store sheds for the lime. The arch (fig. 2) is protected by the shed under the track, and the engraving gives a front view of that part of the kiln which is shown in dotted lines at *A*, fig. 1. At *B*, *B*, are two bearing bars of cast-iron, 3 x 2 inches thick, which support the draw bars, *C*. These are made of 1¼ in. round wrought-iron, having rings at the outer end, and of which there are four to the foot across the throat of the kiln, which is four or five feet in diameter. The rings serve to admit a crow-bar, by which the bars, or some of them, are drawn out to let down the charge of lime. The open space, *D*, is intended for the insertion of the bar to loosen or break the lime, should the throat become gorged. A cast-iron frame, with an aperture of 3 x 24 inches, is built into this opening. It also serves to kindle the kiln, and is closed by an iron door. The car (fig. 1) should be made of wood, and lined with sheet-iron; it is hinged to the front axle, and is hooked to the draft-rope so that when the fore-wheels strike the block, *E*, at the mouth of the kiln, the car tips and dumps its load. The iron door, *F*, which closes the kiln, is raised or lowered by means of the rope and ring, *G*, which passes over a pulley fixed upon the side of the flue. A covered shed will be needed to protect the top of the stack, and a gallery should be made around it, for a passage-way for the workmen. This kind of kiln is suited only for the use of coal as fuel; when wood is used, common pits or temporary kilns like those shown at *a*, *a*, September, 1871, are to be used.

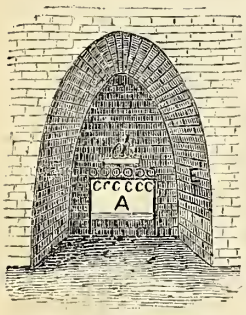



Fig. 2.—THE ARCH.

## Fall Fallowing.

The old practice of summer fallowing, or working the soil for one year without a crop, for the purpose of gaining a double crop the second season, is now, very properly, obsolete. While some may question the propriety of this opinion, there can be no doubt as to the value of fall fallowing. The constant turning and working of the ground during the fall months cost nothing but time and labor, at a season when these can not be otherwise employed, and so, in reality, cost nothing. But the benefits to the soil are very considerable. Especially is this the case with heavy clay soils, and less, in a descending ratio, through the gradations from heavy clay down to light loams—at least it is so considered by many; and it is reasonable to suppose that if the atmospheric effects upon the particles of a clay soil serve, to some extent, to dissolve the mineral particles, they may easily do the same service for a sandy soil, and help to set loose some of the potash contained in the granitic or feldspathic particles of such a soil. The mechanical effects of the fall working are certainly more useful upon clay than a light loam; but there are other purposes to serve than merely to disintegrate the soil, and mellow and loosen it. There are weeds to destroy, and the forwarding of the spring work by the preparation of the ground for early sowing. These services are as useful for a light soil as a heavy one, and as it is reasonable to look for some advantage from the working in the way of gain in fertility on light as well as heavy soils, it is advisable that owners of either kind should avail themselves of whatever benefits the practice affords. Fall fallowing consists in plowing and working the soil with the cultivator or the harrow. This may be done at such intervals as may be convenient, or which will help to start some weeds into growth, when these may be destroyed by the harrow or cultivator. Heavy soils should be left in rough ridges at the last plowing, with as deep furrows between them as possible, in order to expose the largest surface to the effects of frost and thaw. Light soils may be left in a less rough condition, but the last plowing should be so done as to throw the furrows on edge, and not flat, leaving the field somewhat ridged. A very little work in the spring will put the ground into excellent order for the early crops, and for spring wheat, especially, this better condition of the soil will be of the greatest benefit. When thus treated in the fall, the soil is remarkably mellow, and is dry enough to work much earlier than the compact stubble land which remains as it was left after the harvest. As to the time for doing this work, the

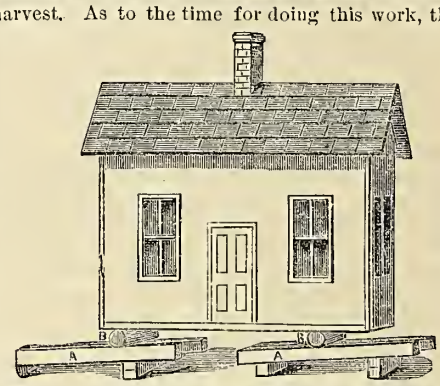



Fig. 1.—BUILDING WITH ROLLERS IN POSITION.

sooner it is begun, and the oftener it is repeated, the better. It is not too late to finish when the ground is frozen, or there is an inch of snow on the ground.

## Cheap Method of Moving Buildings.

BY L. D. SNOOK, YATES CO., N. Y.

Farm buildings are frequently built with little or no relation to each other, and for greater convenience and usefulness, it is afterwards found desirable to move them a short distance. This is usually done by means of tackles, trucks, and other apparatus, for which those who make a business of such work charge from $8 to $10 per day, when accompanied by a foreman. In very many cases this expense can be avoided by the use of the simple apparatus shown in the accompanying engravings. The rollers are seen in position in figure 1, from which the whole method will be understood.

The building is raised sufficiently to place the timbers, *A*, *A*, under it, which incline in the direction the building is to be moved. The rollers, *B*, *B*, are placed as shown in figure 2, and should be of hard wood, with bark removed, about three and a half feet long and from six to ten inches in diameter. Holes one and a half inch in diameter are bored through the rollers near one end, in which the loose lever, *E*, is used. One of these rollers, with a lever in place, is seen in figure 2. If the building be a heavy one, a man should be stationed at each lever, and move the levers in concert. When it is desired to move the building at an angle, it is necessary to place the roller facing the direction

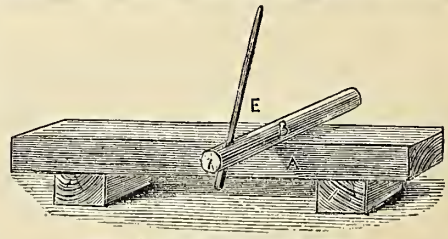



Fig. 2.—ROLLER AND LEVER.

desired. Should the sills of the building be found decayed, place a plank between them and top of the rollers. This plan of moving does not dislocate and strain a building half so much as when pulled by ropes and tackles, an important consideration, especially if the building is old or not over strong.

**Black Leg in Calves.**—This disease, which is so prevalent in spring and fall, and is so sudden in its attacks that it is nearly always fatal, affects only those calves which are well fed and in good condition. When the young animals are to all appearance thriving, the owner is apt to be satisfied and thinks all is well with them; but in reality it is then that watchfulness should be exercised, or at least

some precaution should be used. Over feeding is productive of more disease than scanty feeding, and when calves are known to be in a luxurious pasture, it will be wise to give them an occasional purgative of an antiseptic character. Sulphite of Soda is an excellent alterative, and may be given in one dram doses with some Epsom Salts at intervals of a few days; once a week for instance, will benefit as a preventive of this disease.

## Plowing From the Inside of the Field.

There is but one reason why plowing should not be done from the inside of the field, and that is, the imaginary difficulty in "coming out right." There are several points in favor of this method: When a field is plowed, beginning at the outside, there is always a dead furrow running from each corner to the center; besides this, the team is obliged to run out, and turn upon the plowed land at every corner, making a broad strip which is much injured by the treading, especially if the land is clayey and rather moist. By beginning at the middle, all this is avoided; the horses turn upon unplowed land, and the soil at each plowing is thrown towards the center of the field, as it should be. There is no difficulty in finding the center of the field from which to begin the plowing. Suppose we have a rectangular field like the one shown in figure 1; any person who can measure by pacing, is able to find the middle of the ends, *A D* and *B C*; the points *K* and *L*. From *K*, pace towards *L*, a distance equal to one half *A D*, which gives the point *E*. Also the same distance from *L*, towards *K*, giving F, and the work of fixing the central point is done. Run a furrow from *A* and *D* to *E*, and from *B* and *C* to *F*; these define the corners and assist in the turning of the

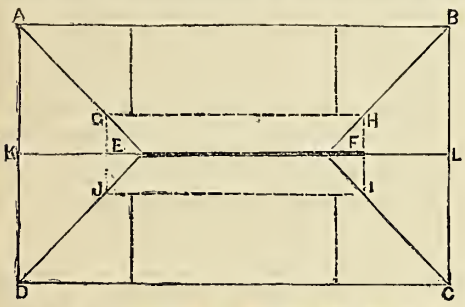
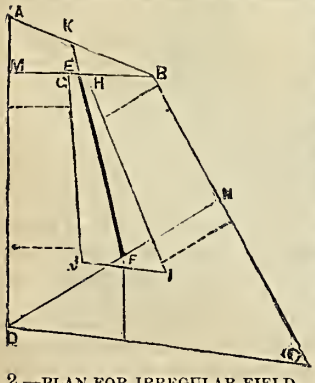



Fig. 1.—PLAN FOR RECTANGULAR FIELD.

plow. The plowing then begins by back-furrowing from *E* to *F*; plowing on the ends as soon as possible. After the work has progressed for a time, as far as indicated, for example, by the dotted lines, *G*, *H*, *I*, *J*, pace from the furrow to the outside (see dotted lines), at or near each end of the furrow, as a correction, and, if necessary, gauge the plow until the furrow on all sides is equally distant from the boundary. When the field is of irregular shape, it is not difficult to begin in the center and plow outward—in fact, this system is of most importance here, because all the short turning in the middle of the field, incident to the irregularity of the field, comes on unplowed ground.

In figure 2 we have a piece of very irregular shape. From a point on *A D*, at right angles to *B*, pace the distance to *B*, and place a stake at the middle point, *E*. In the same way determine the point *F* on the line *N D*. In a line with *E*, *F*, measure from *K* a distance equal to *M E* (½ the perpendicular distance across the end of field), and also in like manner determine the point *F*—which gives the central line, *E F*. The plow should be run from the four corners, as in the first case, to make




2.—PLAN FOR IRREGULAR FIELD.

the corner lines. The plowman will use his judgment, and plow only upon the lower portion at first, until the plowed land takes the shape

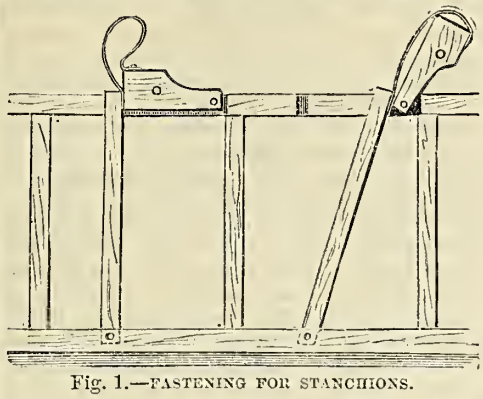


Fig. 1.—FASTENING FOR STANCHIONS.

*G*, *H*, *I*, *J*, when the correction is made. From this time on the furrow runs parallel with the boundary, and the work continues smoothly to the end.

## The "Census-Man" is Coming.

Next year will be 1880; and when the number of the year ends in a cypher, there is a great ingathering of all sorts of statistics. In other words, the Decennial Census is taken by the United States Government. At some time during next year the home of every farmer, and of every other person, will be visited and the occupant called upon to give concise answers to a long list of questions. In order that these answers may be accurate—for the value of the census depends upon its accuracy—every farmer should write down, while it is fresh in his mind, the number of acres of wheat and other grain grown *this year*; the yield, etc., etc., the number of head of live stock, the products of the dairy, and in fact all the results of this year's farming, and have them ready for the day when the facts are to be gathered. It is to the interest of the farmer that the census be accurately taken; so let each one be prepared beforehand, and not be forced to give hasty guesses upon such important matters. There are peculiar people, not to say "crooked sticks" in the world, though we are glad to believe that these, though they exist among farmers, are not especially numerous. Yet even among farmers there will be those who regard the questions put by the census-taker as an impertinent inquiry into their private business, and either refuse to reply altogether, or to give blind and evasive answers. Such persons should know that the census-taker is an officer of the General Government, and represents, for this purpose, the will of the people as expressed in a law passed by both houses of Congress. Laws carry with them a penalty for their violation and evasion; those who resist the examination of the "Census-Man" may get into trouble.

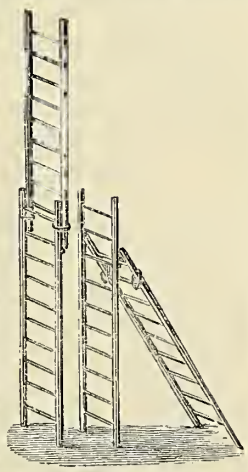


Fig. 2.—FOLDING LADDER.

## Hints and Helps for Farmers and Mechanics.

FASTENING FOR STANCHIONS.—A subscriber sends us a method of fastening stanchions by means of a key, shown at figure 1. This is drooped down behind the stanchion when it is closed, and holds it firmly in its place; when the stanchion is opened and the block is turned out, it is held in its place by a strap of rawhide. The strap is fastened so that when the stanchion is shut, the block is drawn over by the movement of the stanchion.

A CONVENIENT LADDER.—A ladder that will fold, such as is very convenient about the farm buildings, is shown at figure 2. Two ladders, one 8, and one 10 feet long, are hinged together, so that 2 feet of the longer one projects beyond the end of the other. The ladder may then be changed into a step-ladder. When a long ladder is wanted, the two parts are extended and held together by rings slipped over the joints, or they may be wrapped with pieces of rope kept purposely for it. When not in use, it may be folded and put away in a small space.

PLOW BOATS.—Half a dozen plow or tool boats may find constant use on a farm, or even where there is only a large garden or country plot. They serve every purpose of a wheel-barrow and are more convenient. The writer has several of them in use on his farm, and not even a cultivator is taken from the tool-house except it is on one of them. Thus tools are saved from damage, and the roads are not cut up. To make a boat, two pieces of 2-inch plank, 5 or 6 feet long and 6 inches wide, are cut, with half-round ends and notches in one edge as shown at figure 3. Cross-pieces are spiked upon these, and strips of board are nailed upon the cross-bars as shown at figure 4. A sled or boat of this kind can be used for carrying plows, harrows, and other implements, bags of fertilizers, seed, barrels of plaster or lime, and other similar things to any part of the farm. A steadfast rule that every tool

Fig. 3.

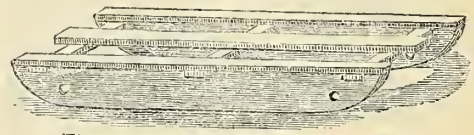


Fig. 4.—THE PLOW BOAT COMPLETED.

taken to the field shall be brought home at night, will be more easily obeyed if plow boats are used.

## Wooden Boxes for Machinery.

Where slow motion only is required, or where machinery works in water, there is no other kind of box better than one of wood. The wood best fitted for this use, is the root of hard maple or yellow birch. The grain of these roots is twisted, the fibres are tough, and if the grain is placed endwise to the bearing, the resistance to wear will be found greater than that of metal boxes, for driving shafts for horse powers, threshers, fodder-cutters, pumps and other machinery where the motion is not over 250 or 300 revolutions in a minute. Where the motion is greater, wooden boxes lined with Babbitt metal may still be used; so that for any purpose whatever, in an emergency or for regular use, a supply of well selected and prepared wooden boxes might be kept on hand, wherever machinery is used out of easy reach of a foundry or machine shop. The timber should be selected for its gnarled arrangement of fibres, and seasoned slowly under cover, but in an airy place. It should then be sawed into squared blocks of the proper size for different uses, and steeped in crude petroleum or sperm oil, until thoroughly saturated. The blocks may then be put away for use, in a dry place, or kept in the tool-chest. The blocks are first roughly sawed out, leaving the trimming to be done afterwards. The hole is bored of the proper size for the shaft, being centered truly and bored from each end, leaving it a little smaller than the shaft for a tight fit (see fig. 1). When this has been done, the block can be oiled and put away. When finally prepared for use, the block is squared up truly, and sawed exactly through the center of the shaft-hole, (fig 2), and is then sand-papered to fit its place. As the boxes wear, the inner surface is dressed by planing or rubbing upon a sheet of sand-paper until the bearings are again

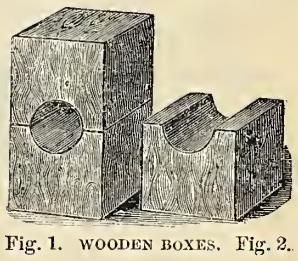


Fig. 1. WOODEN BOXES. Fig. 2.

accurately adjusted. All this may be done very rapidly by a farmer or his boy who can use tools. For boxes for water-wheel journals, and also for steps to turbine wheels, where the work is done under water, there is nothing better than wood of the kinds mentioned above, and the wear of iron upon wood, or of wood upon wood, is much less than that of iron upon iron or upon brass. The best lubricator for wooden boxes—excepting in water, when no other is required—is tallow and black-lead or black-lead alone; when machine oil is used, black-lead should always be mixed with it.

## Milk Shelves.

BY L. D. SNOOK, YATES CO., N. Y.

Our contributor, Mr. Snook, sends us drawings of two forms of stationary milk shelves, both with open bottoms. That shown in figure 2 consists of a single center piece of timber, six inches square, firmly fastened to a stringer at the top and below to the cellar floor. On this timber the cross pieces, one inch square and three feet long—which should be of well-seasoned, planed, and oiled wood—are nailed in pairs; care should be taken that they are perfectly horizontal, as they form the shelf upon which the pans are to sit, one upon each side of the center post. A rack thus arranged can hold from 20 to 26 pans, depending upon the length of post and distance between the shelves. It is not best to have the pans nearer to the cellar bottom than two feet, and, to prevent danger from mice and rats, an old pan can be put on the post, as shown in the engraving. The second form of rack, or shelves, is shown in figure 1, and has two upright posts to which the cross slats are nailed. This shelf can be placed by the side of the cellar, as the pans can all be put on from the same side. The "standards" may be two by six inches in cross section, and if placed 32 inches apart, there will be room for two pans between them. They can be placed any distance apart, but the greater the distance the stronger must be the cross pieces. With the posts square, as in the first rack, cross shelves could be put on, in which case the whole rack could stand out from the wall, and we should have a combination of the two forms given above.

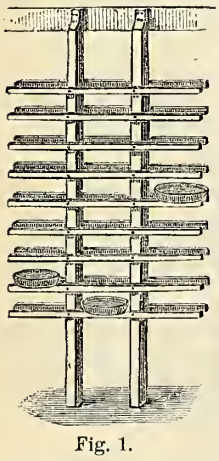


Fig. 1.

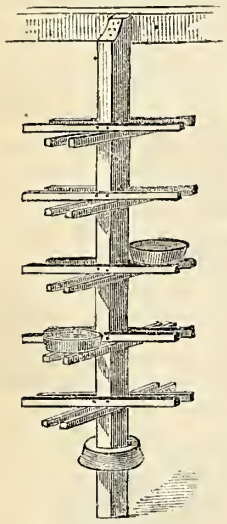
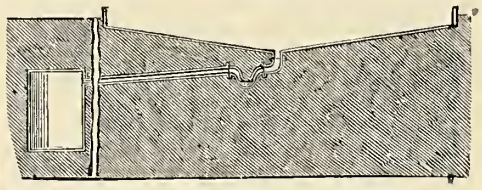


Fig 2.

## A Water Gatherer for Upland Farms.

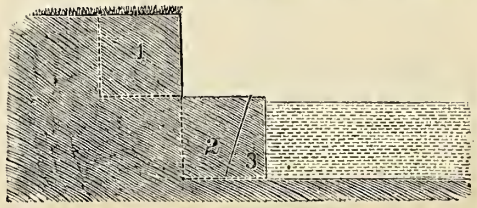
There are many localities otherwise desirable for dairying, which are unsuited for this business, because of the scarcity of water. The grass is abundant and good, but without good water, cows cannot give good milk. This is notably the case in parts of Kentucky and other Western States, where streams are few and wells are unsatisfactory, because of the nearness of rock to the surface, and the open, fissured character of the rock through which water escapes. But there is a way out of this difficulty. A water gatherer may be made at the highest part of the farm, which will collect a very large supply of water. For instance, a table of 100 feet square, or less than a quarter of an acre, will gather every year 30,000 cubic feet of water with a rainfall of 36 inches, this being equal to 225,000 gallons, or 7,000 barrels; a supply sufficient for 60 head of stock the whole year, giving 10 gallons daily to each. A table of 200 feet square, or less than one acre, will supply four times as many animals. The table, or water collector, may be slightly hollowed to a central point (see figure) where a receiving pipe is provided, connected with an air trap to prevent evaporation, and with drain pipes to cisterns in different parts of the farm, or to the buildings, where permanent pipes and taps may be fitted, from which water can always be drawn where it may be required. The cost of this arrangement will be very moderate. If the water-table is covered with cement and sand 2 inches thick, which is advisable, as the whole rain-fall will then be collected, it will cost about $100 for the cement for 100 feet square; 1 barrel of cement, with 3 of sand, will cover 100 square feet 2 inches thick; 1 inch is thick enough in some cases, and at that rate the cost for cement will be reduced to $50. The drain-pipe will cost about $20 per 1,000 feet laid, the joints being cemented; a galvanized iron pipe may be used at a somewhat higher cost, but with greater durability and less labor. The cisterns should be large enough to hold all the water that may fall in the wet season, as they must serve for storage tanks in the dry weather. They should be large enough to hold at least one-fourth of the annual supply, or nearly 2,000 barrels, with a 100 feet square collector. A round cistern, 18 feet in diameter, and 18 feet deep, will hold over 1,000 barrels, or 60 barrels to the foot in depth. On the whole, the cost will amount to a small portion of the value of a copious supply of good water. It need hardly be said that the water-table should be kept well fenced from all kinds of stock. Where there are grassy hollows in which water collects during heavy rains, drains may be laid from the lowest points of these, leading to cisterns; and a large supply of water may be gathered in this way at little cost; but for a permanent supply, the collector above described will be found better than any other, and equal in all respects to a roof.



AIR TRAP AND SECTION OF GATHERER.

## Digging Swamp Muck.

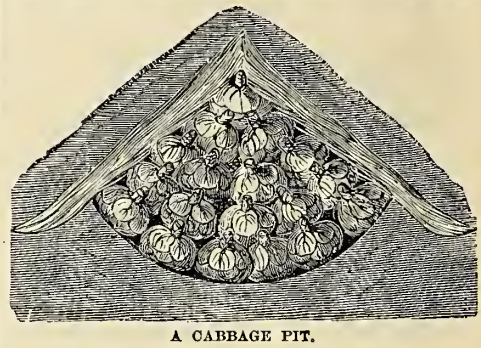
The present month is a favorable time for getting out muck from the swamp. Although the water may be high, it is easy to get out the muck by good management. A practicable method is as follows: choose a place to begin, which is easy of access to the bank, and begin to dig in a direct line from the bank into the swamp. Probably when the solid bottom of clay, sand, or quicksand is reached, water will spring up and fill the hole dug in one night. No matter, begin again the next morning so far back as will furnish one day's digging and no more. Take off the top to the water level, as shown by the portion marked 1 in the engraving. Then dig away the part marked 2, leaving a piece, marked 3, as a dam to keep out the water. All this may be done without trouble before the water bottom is reached. All that remains is, to take away the piece marked 3, and this will be best done by digging away at the bottom where the muck is softest, with care to take all that is possible before letting the water in. When it can no longer be kept out, take out the top of the dam, which, being tough, can be drawn out with grab hooks, as it is cut off into pieces with a sharp spade. In digging a large quantity of muck without any care, a man made 60 cents a day at 15 cents a cubic yard. When this method was explained to him, he dug 6 yards a day, and, after a time, got up to 10 yards, or one yard in an hour.




PLAN FOR DIGGING MUCK.

## Storing Cabbages in Pits.

As the value of cabbages for feeding is becoming better known, this crop is more largely grown. The greatest difficulty is in preserving them. Decayed cabbages are certainly the worst possible food for a dairy cow, and the odor and taste of the milk caused by them are far more disagreeable than when turnips are fed. The successful keeping of them is therefore very important. A thousand head of well grown cabbages will furnish a full ration once a day for ten cows during at least two months; by pitting them, cabbages may be kept in good order for twice this length of time. The usual method of storing in cellars is not so good as that of storing in pits. Pitting is done by plowing several furrows, so as to scoop out a long hollow or trench, and heap the earth upon each side of it. The cabbage are then packed, head downwards, in the trench in the manner shown in the engraving, and first covered with straw, then with earth sufficiently thick to keep out the frost. We have packed them without straw, and found them to keep better than with straw, as the closer the packing so as to exclude air more thoroughly, the better is the condition of the cabbages; the earth, too, seems to have a preservative effect; the heads being packed downwards, no earth penetrates between the leaves.



A CABBAGE PIT.

## Fattening Turkeys.

It is a goodly sight, as the summer days wane, to see the flocks of turkeys coming home from the woods and pastures at nightfall, with full crops. If the farm has not been over-stocked with these birds, they have very largely made their living upon grasshoppers, crickets, worms, and other small fry. The regular food they have had has been rather to keep them wonted, than to supply any lack of forage. As the cool nights come on, and the supply of insects declines, the business of fattening properly commences. It should be remembered that plump, well dressed turkeys, not only bring a higher price in market, but enhance the reputation of the producer, and make his market sure for future years. The turkey is one of the finished products of the farm, and one of the greatest luxuries in the market. The farmer should do his best in preparing his flock for the shambles. The main business now is to lay on fat, and the bird should have, every night and morning, a full supply of nutritious and fattening food. Instinctively the turkey follows his feed, and if the supply is abundant at the farm yard, he will not stroll far from home. Boiled potatoes, mashed, and mixed with meal, and fed moderately warm, is a very excellent feed both to promote growth and to fatten. If the pigs can be robbed of a part of their milk, and it be mixed with a part of the hot potatoes and meal, it will very much improve the dish. It is very desirable to supply the place of insects with some kind of animal food, and butcher's scraps is one of the cheapest and most desirable forms of food for poultry. Grain should be given at least once a day with the soft and warm feed. Nothing is better

than sound corn. The northern corn is thought to contain more oil than that of southern growth. Old corn should always be used for this purpose. The new corn keeps them too loose. In feeding, only so much corn should be thrown out as the birds will eat up clean. Take a little time to feed them, and study æsthetics, as you watch the iri-

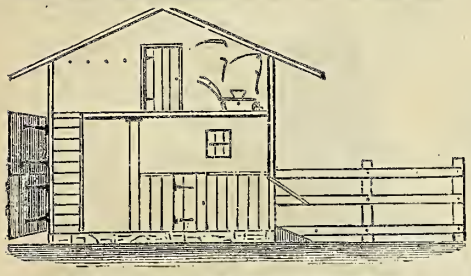


Fig. 1.—END AND SECTIONAL VIEW

descent hues upon the glossy plumage. There is nothing more charming upon the farm in the whole circle of the year, than a hundred or two of these richly bronzed turkeys feeding near the corn crib. You can afford to enjoy the disappearance of corn, while the turkeys are increasing in weight. Dreams of a full wallet at Thanksgiving and Christmas will not harm you as you look on this interesting sight.

## A Pig-Pen and Tool-House.

Having occasion to build a pen for a few Berkshire pigs, the writer arranged the upper part for the storage of small tools, seed sowers, and cultivators. This was done by making an upper floor 7 ft. high, open over the passage way, as shown in figure 1, which is a section of the inside of the building, and providing at the end of the passage a stairway by which the upper floor is reached. The larger tools are taken up through a door at the end of the building. The pen itself has some conveniences which may be worth mention here. The plan of it is given at figure 2. The pens are arranged on one side of the passage, with doors opening into it, so as to reach across it and close it when necessary. It is thus easy to get access to each separate pen or

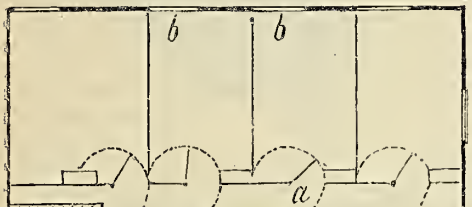
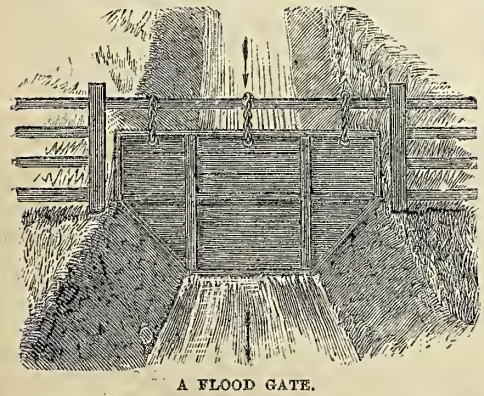



Fig. 2.—THE GROUND PLAN.

from one to another. The doors swing both ways, either into the passage or into the pen as shown at *a*; swing doors, at *b*, *b*, give access to the yards The pens are provided with ordinary troughs.

## Another Flood Fence.

The weak point of a fence is where it crosses a stream; a sudden freshet washes away loose rails,

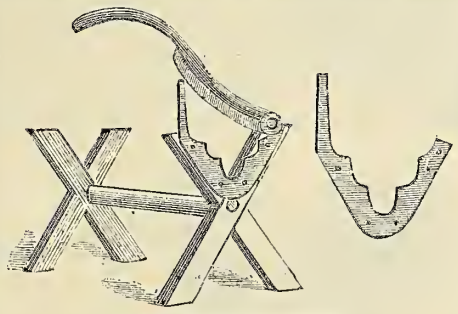


A FLOOD GATE.

and a gap is left through which trespassing cattle soon find a passage. Many devices have been previously described in the *American Agriculturist*, and a new one is sent by a correspondent, W. W. This is self-acting, when water rises high enough, it opens, and when the flood falls it closes again. It may be made of rails, bars, or fence strips.

## A Brush Cutter.

Mr. G. W. Carter, Leslie, Reno Co., Kansas, sends us the drawings of "a handy machine for the poor Kansas settlers, that have to burn cornstalks and brush." The machine consists of a frame for holding the brush, made of four pieces of timber, in shape and position like those of a sawbuck. At one end a heavy cast-steel knife is fastened by one end, and is worked by a long wooden lever at the other, as shown in the engraving. The end of the trough, along which the knife passes, should be faced by an iron plate. The machine is, in fact, a very strong form of the old knife machine for cutting straw. We are sorry that our Kansas friends are obliged to practice such extreme economy in the matter of fuel, but so long as it is demanded from the scarcity of timber, we are pleased



A CHEAP BRUSH CUTTER.

to extend the knowledge and use of any instrument, that will render that economy easier. This Brush Cutter is not patented, and can be made by any one, with a little aid from the blacksmith.

## Piping Stone Drains.

While it is admitted that tile drains are the most economical and effective for all extensive farm drainage, there are small jobs of drainage upon almost every farm remote from tile works, that can be quite as well accomplished by the use of stone. This is especially true where surface stones are abundant, and the drains are made in order to dispose of the stones. The common objections to stone drains are the greater amount of earth that has to be removed in making the ditches, and their greater liability to be interrupted by the infiltration of earth during heavy rains. The primitive method of making stone drains, still followed on many farms, is to dump the stones directly from the cart tail into the ditch, without any attempt of making a duct at the bottom for the water. This answers for a few years in some soils, and then becomes useless. A culvert at the bottom is a great improvement, and much more durable. But this is liable to be broken up by the washing of the water at the bottom and sides, especially if there is a swift current. One effect of drainage, even in clay and hard-pan, is to disintegrate the soil down to the water line, so that it is carried off into the drain, the stones at the sides are gradually displaced, the caps of the drain fall in, and the duct is interrupted. In draining swales and side hills, where there is a rapid fall, it is exceedingly difficult to construct a stone drain that proves durable. We recently visited a Quinebaug farm, in eastern Connecticut, where we found a new style of piping, that met all the conditions of an effective stone drain. The drain was about sixty rods long, and had been in operation twenty years. The object was to drain a swale, and to bring water into a barn-yard for the convenience of stock, especially in winter. The drain was about three feet deep, and in its passage from the fountain head to the barn, passed over a gravelly knoll, with a very loose subsoil, which for a few days absorbed all the water. By degrees it brought down clay enough from above to make a compact bottom, and carry the water to its point of destination. The bottom of the drain was paved with stones. The piping consisted of flat stones set edge wise, inclining together at the top, so as to leave four distinct ducts at the bottom of the drain. The flat stones were so laid as to break joints, and to interrupt the rapid flow of the water. The spaces between the sides of the drain and these flat stones were packed firmly with stones, and covered with stones of the smallest size, gathered from the surface of plowed fields. The top of these stones

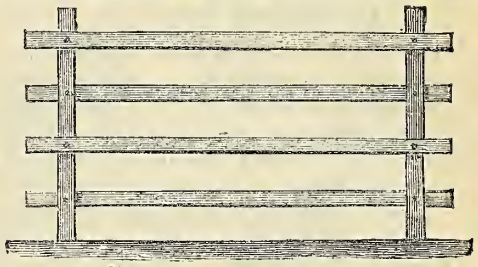


Fig. 1.—FENCE IN POSITION.

was packed as closely as possible, and covered to the depth of a foot with sods and soil. The advantage of these several ducts at the bottom of the drain is that the water is compelled to flow slowly, and there never can be any displacement of the stones from the washing of the sides. If the filling in of the drain about these ducts is properly done, there never can be any infiltration of the soil that will not be immediately carried off by the flow of water beneath. This drain, built twenty years ago, has been in perfect working order, without any repairs, ever since. Besides performing its office as a drain, and greatly improving the wet land on either side, it provides an abundant supply of pure water for cattle all the year around. In the saving of labor, and thrift of cattle, it has paid large dividends upon its cost every year. CONNECTICUT.

## A Portable Folding Fence.

A portable folding fence or hurdle, which has many useful points, is illustrated in the accompanying engravings. (This is the invention of one of the Editors of the *American Agriculturist*, and is not patented.) It has two or three upright pieces and four bars, (fig. 1), the bars are fastened to the stakes by ½-inch carriage bolts, in such a manner

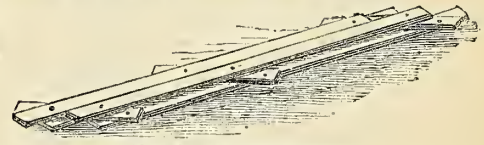


Fig. 2.—FENCE FOLDED.

that the panel will shut up much as a parallel ruler closes, when desired. As the bars are placed on alternate sides, the fence folds very closely, taking up the space of two bars only, (fig. 2), instead of four, as would be the case if they were all on one side. The fence may be thus easily removed from place to place, and may be used on a hill side, (fig. 3), as well as on level ground. It may either

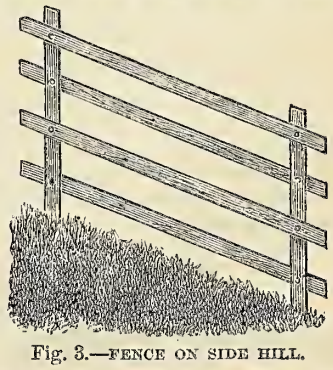


Fig. 3.—FENCE ON SIDE HILL.

be wired to stakes, or the stakes may be driven down between the alternate bars, by using them of the same thickness as the upright pieces.

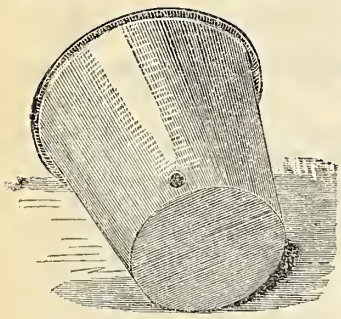
**The Cost of Milk.**—The present price of milk is very low, averaging one cent per pound, and in many cases less than that. Milk can be produced at that price only under specially favorable circumstances and on cheap land. Where land is worth

$75 per acre, and four acres are needed to support a cow that gives no more than two thousand quarts in the year, it is clear that milk cannot be produced for two cents a quart. Unless the yield of the cows is increased by better feeding, or by better breeding, or less land is made to support the cow by the use of fodder crops, it is clear that the dairy business must go west where land is cheaper.

## An Improved Flower Pot.

BY PETER HENDERSON, JERSEY CITY HIGHTS, N. J.

The accompanying engraving shows a flower pot, the idea of which is not exactly original, though I have never before seen it applied to pots in general use. "Propagating Pans" and "Orchid Pans," as they are called, are often made on the same principle, but with a *series* of holes around the bottom. The making of these holes of course entailed an expense that couldonly be afforded when they were used for the special purposes of propagating or growing Orchids or other rare plants. When made in the same manner as the ordinary flower pot, but with only *two* holes in each, our manufacturers say they can supply them nearly as cheap as the ordinary flower pot. We have during the past six months tried about a thousand, of sizes ranging from 3 to 6 inches in diameter, and find they are all we expected of them. All cultivators know the difficulty experienced when the ordinary flower pot is placed on a bench covered with sand or soil—the outlet often becomes completely closed by the washing of the soil through the outlet, and, being closed by the sand, the drainage becomes stopped as completely as if there was no orifice at all in the bottom of the pot. Again, the angle-worms breed quickly in the sand or soil, and seem to take a special pleasure in crawling under and through the holes in the bottom of the pots, to get at the rich soil they contain. This improved pot is safe from the first difficulty, as the holes, being on the sides of the pot, can not be clogged by the sand; while it is far less tempting to the angle-worm, as a special effort must be made before the hole can be reached. Still another advantage, and we think a very important one, is that as these orifices are placed above the bottom, air is admitted more freely to the roots, a matter which is very essential to the well-being of plants. I have but little doubt that if this style of flower pot can be as cheaply made, that it will quite throw the old style out of use. As this pot is not patented, and probably is not patentable, any worker in pottery can make it, should there be a demand for it.



IMPROVED FLOWER POT.

## Paper Covers for Hot-Beds.

Mr. R. N. Waring, Tyrone, Pa., sends us drawings showing the method of making covers for hot beds, from which the engravings are made, and writes:

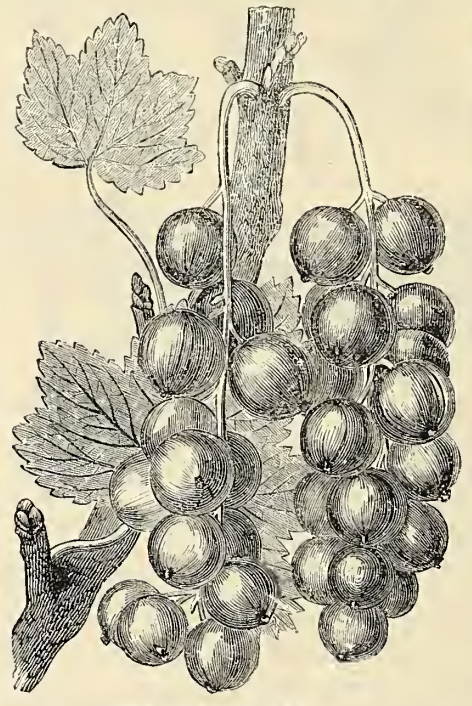
"It is a common practice among gardeners, to place over their cold frame and hot-bed sashes as an additional protection during stormy or excessively cold weather, covers made of wood, straw, or other material; but by far the best are made of felt paper. A gardener near Tyrone has been using covers made of the paper manufactured by C. J. Fay. [See his advertisement in our columns for the last 25 years.—EDS.] Many of the covers which were made six or eight years ago, and which have been subjected to rough usage, are still serviceable. His manner of constructing them is as follows: Three strips of paper, equal in length to the hot-bed for which the cover is intended, are joined at their edges by means of hempen twine, as in figure 1. The ends of the covers are inserted between one by one and a half-inch pine strips, which are then tacked together, figure 2. In windy weather a couple of rails, when placed upon them, will prevent the covers from blowing away. Paper covers are cheap, light, can be rolled up and packed in a small space; are quite impervious to water, and prevent, in a great degree, the escape of the heat."

Fig. 1.—METHOD OF JOINING THE STRIPS.

Fig. 2.—SHOWING END-PIECES.

## Currant Culture—The Victoria.

We have often wondered why the Currant was not more cultivated. It is easily propagated, and cultivated, the fruit is always in demand, it does not rapidly become useless; the crop comes in just after the raspberry; its few enemies are easily controlled, while the profit per acre is at least equal to that of any other small fruit. Probably the largest currant growers, are T. B. Wakeman & Bro., Westport, Conn. They are reported as saying, that their ten acres average over $800 per acre. Growers have settled down upon the Versailles, and White Grape, as the most desirable varieties. Some regard the Versailles and the Cherry Currant as identical, but as we know them, they seem quite different, the Cherry has short bunches of a few very large berries, which are much more intensely acid than the Versailles. It appears to us that growers make a mistake in contenting themselves with these two varieties, as they may easily prolong the currant season by two weeks or more, by growing the Victoria, or as called by some, Queen Victoria. This variety is largely cultivated by J. O. Clarke, Milton, N. Y., who sent us, July 24th, specimens as a sample of his crop, the long stems loaded with large and excellent fruit. Mr. Clarke says that with him they are not ripe until the Cherry Currants are all gone. To show the size of bush and berry, we give an engraving of clusters, taken at random from those sent by Mr. Clarke. The fruit is of a bright, red color, and the quality excellent. According to Downing, May's Victoria is not distinct from this, while Mr. Clarke finds the variety he has under that name, quite different, and much inferior. But there is a very great confusion among currants, and it may easily happen, that the plants cultivated by both these gentlemen as May's Victoria, may not be the same. We notice that Downing gives the French name *La Versaillaise*, the adjective form to the popular variety, which is more generally called Versailles, the substantive, and name of the city. There is the same difference between the two, as between New Yorker and New York, and it will be difficult to make Americans, who always take a "short cut" when possible, to substitute the longer name, for the more easily written Versailles. The old Red Dutch should not be overlooked for family use, as it is the finest flavored of all, and when the bushes are well manured and properly pruned, the fruit is quite large enough for the table.



THE VICTORIA CURRANT.

## Summer Pears.

The *Bartlett* is the earliest pear that appears in our market in any considerable quantity. While this is ranked by fruit judges as only second or third rate, it is easily the first in popular estimation. A nurseryman of large experience once said to us, that of every one hundred pear trees planted in this country, ninety were Bartletts. It has many elements of popularity. One of these is, that if picked when scarcely more than half grown, it will ripen up and become eatable. This quality allows the Bartlett from southern orchards to be placed in northern markets as the earliest pear, and its excellent keeping qualities are greatly in its favor. But those who raise fruit for their own use can have pears and much better ones than the Bartlett, long before that is ripe in northern localities. The earliest pear of which we have any knowledge is the

*Summer Doyenné*—the Doyenné d' Eté. It is a small fruit, an abundant bearer, and ripens in July. It is the best early pear, and if gathered early enough and house-ripened, is acceptable, and vastly better than when ripened on the tree.

*Manning's Elizabeth.*—The late Horace Greeley, some years ago, offered a premium of $100.00 each for the best variety of each kind of fruit. A prize was offered for both early and late pears, and when the Committee awarded the prize to Manning's Elizabeth as the best early pear, great was the astonishment. "What is Manning's Elizabeth?"—"Who knows the pear?" were among the questions freely asked. If these prizes had no other result than to bring this pear, heretofore known only to amateurs, into general notice, the money was well expended. The tree itself has every quality to adapt it to general cultivation; the fruit is below medium size, of the greatest beauty, while the fruit is really excellent, and does not rot at the core. With us it is ripe early in August, and it lasts better than any other kind. If we could have but one early pear it would be this. It is the fault of some of the best early pears that they begin to decay at the core, and however fine an exterior they may present, they are soft and worthless within. This may be overcome in part by gathering early and ripening in the house. But when this is done, the interval between the time at which the fruit is fit to eat and that at which it begins to decay, is so brief as to unfit them for marketing. A facetious friend says of such fruit, that it needs to be eaten "with the watch in one hand and the fruit in the other," in order to catch it in perfection. The principal varieties of this class are:

*Beurré Giffard.*—This is ripe with us in August, and needs to be picked very early. The fruit has beauty and is of the highest excellence, and of good medium size, while the tree is productive.

*Clapp's Favorite.*—This is said to be a cross between Flemish Beauty and Bartlett, and is one of the most beautiful pears of any season. The tree is very productive, and if thinned the fruit grows to a large size and of excellent quality. It has the fault of decaying at the core, and of being in perfection but a very short time, in a more marked degree than even Flemish Beauty. We have year after year gathered it earlier and earlier, and while we have succeeded in avoiding the decay at the core, yet after it is fit to eat, it will not last a day.

*Tyson.*—When the tree comes into bearing, it being very slow about it, it yields an abundance of fruit of medium size and handsome color, and of first quality. If one wishes to know how sweet a pear can be, let him try the Tyson. It is better than any of the foregoing, coming late in August.

## The Large Cone-Flower.

When one reads the gushing articles which now and then appear about prairies and prairie flowers, in which these treeless expanses are spoken of as "flowering meads" and "nature's own flower gardens," we are inclined to think that the writers can never have seen a prairie. It is true that a prairie impresses one with a sense of grandeur, due to its vastness, but when it comes to prairie flowers, they are on the same broad scale—large and showy—but lacking in that delicacy in form and color that constitute beauty in a flower. The immense Sun-flowers, the tall Cone-flowers, and others of similar stature, make up the general floral effect, their coarseness being unnoticed as they are spread over a vast area, in which the more delicate species would be lost from view. Among these coarse and tall prairie flowers are many worthy of cultivation, certainly not as bouquet flowers, but for a large garden, where their robustness and vigor make them very effective, if seen from a distance. For this use several of the Cone-flowers (*Rudbeckia*) of the Western Prairies have long been in cultivation, and we have for some years had in the garden a southern and south-western species, *Rudbeckia maxima*, the "Large Cone-Flower," which is so much unlike the other species that we call attention to it as desirable where there is room for such subjects. This species, extending from Arkansas, its northern limit, through Louisiana to Texas, and being a peculiarly southern species, we are rather surprised to find it hardy; as it has stood the past three winters without protection, we may regard it as hardy for the climate of New York City. The aspect of the plant is quite different from that of any of the more familiar species; while its specific name, *maxima*, indicates that it is *large;* it is without the coarseness that belongs to the others. The stem, which, according to Nuttall, its discoverer, reaches nine feet, is with us about six feet high, and simple or sparingly branched above. The leaves are generally ovate, the lower on long petioles, the upper sessile and more or less clasping the stem; all have that peculiar green color known as *glaucous*, or sea-green, of which we have a good example in the cabbage-leaf, and which gives to this plant one of its most striking characters. The flower heads are either solitary, at the end of the stem, or the stem branches above and has the heads of flowers on naked stalks fifteen or twenty inches long. The flower-heads are striking, on account of the peculiar shape of the brownish disk, as the central portion of the flower-head is called. In most of the Composite Family the central portion is flat or convex, as we see in the common Sun-flower, while here it becomes conical and extends upwards to the hight of one or two inches, projecting above the few long yellow rays, which soon become drooping. Now that the plant has proved to be hardy, its tall stature, its neat glaucous foilage, joined to the peculiar appearance of its flower-heads, will make it desirable in gardens, either in isolated clumps or at the rear of other plants.

THE LARGE CONE-FLOWER (*Rudbeckia maxima*).

THE BROAD-LEAVED UNIOLA (*Uniola latifolia*).

## Ornamental Grasses for Winter.

That the cultivation of grasses has greatly increased within a few years is shown by the fact that the majority of the seedsmen's catalogues have a separate division for their seeds. Grasses are grown both for the decoration of the grounds and for use in winter bouquets, etc. We have no sympathy whatever with that taste which leads to the dyeing of grasses, and even bronzing them. We think a bouquet of properly dried, and tastefully arranged, graceful grasses a very pleasing decoration. It seems strange to us that people can not be satisfied with beauty of form and grace of outline, but must have color in addition, even if they get it by violating nature. What can be more unnatural than a panicle of grass of the deepest crimson or most intense scarlet, unless it be one of jet black, all of these absurdities being unpleasantly common? Both annual and perennial grasses are cultivated. Among the former are several species, the chief merit of which is the delicacy of their panicles and the minute size of their spikelets; these are only useful for in-door work, in which they are very effective. Among the perennials, Pampas Grass stands at the head. It is tender at the North, but it is worth the trouble of covering in winter. Its long feathery plumes are a considerable article of trade, being sent in large numbers from the Southern States and California. Next to this is the Ravenna Grass, *Erianthus Ravennæ*, perfectly hardy, but its plumes lack the silkiness and grace of that. Our common Reed (*Phragmites*), the European Reed (*Arundo*), the native Beard Grasses (*Andropogon*), and the Woolly Beard Grasses (*Erianthus*), and, above all, the Japanese Eulalia (*Eulalia Japonica*), are hardy near New York City. The beauty of most of the above depends mainly upon the hairs which accompany the florets, hence it is desirable to retain these, not only for this reason, but to prevent them from annoying the housekeeper by making a litter. They should be collected when fairly in flower, which may be known by the appearance of the anthers, and hung up in small bunches in a room free of dust. Among the smaller perennial species specially worthy of cultivation is the "Feather Grass" (*Stipa pennata*), the long plumy tails to the flowers of which are largely imported, dyed in all sorts of unnatural colors, as if nature's own delicate buff could be improved upon. Then there is the "Broad-leaved Uniola" (*Uniola latifolia*), a native species, found from Pennsylvania and Illinois, southward. This grows two or three feet high, and has a large, loose panicle, bearing large flattened spikelets of the shape shown in the

reduced engraving, and, when full-grown, an inch or more long. This grass seems to be but little known abroad, at least we do not find it mentioned in the recent works on perennial plants. A clump of this grass in rich garden soil gathers strength from year to year, and when well established is a beautiful object. The loose, drooping panicles have a wonderfully graceful expression when living, and this is not lost when added to a winter bouquet. The grasses named here are all perennials of the easiest culture; for the annuals we refer to the seed catalogues. Those who make bouquets and other winter decorations of grasses, should not neglect those native species which every locality affords. If pleasing while growing, they are likely to be equally so when dried. In collecting, observe that one is more likely to err in collecting the grass too late than in gathering too early. If they are too near maturity, the spikelets are, as a general thing, likely to very soon fall apart and drop, thus becoming useless when dried.

## Spurred Rye or Ergot.

The heads of Rye, and several others of the Grass Family, often present a peculiar growth of some of the grains. Instead of remaining of the ordinary size and appearance, they become much enlarged, horny in texture, and of a purplish color. From the resemblance of these grains to a cock's spur—being hard and pointed—and being most frequently found upon Rye, it has long been known as Spurred Rye. In medicine it is known as Ergot, and sometimes as *Secale cornutum*, the Latin for "Horned Rye." This peculiar growth is caused by a small fungus (*Claviceps purpurea*), which attacks the grains while still young, changing their soft, growing substance, rich in starch, into the hard "spurs," which contain no starch, abound in poisonous matters, and possess a heavy and disagreeable odor. Ergot contains a great amount of oil—about 30 per cent.—to which the odor is in part, at least, due. Figure 1 represents a head of rye, one half the natural size, with a number of the grains of Ergot in position. In figure 2 two spikelets of Couch or Quack-Grass (*Triticum repens*) are represented, one of which is "Ergotted," and the other not. The specimens from which these engravings were made were brought to our office along with other destructive fungi. A separate grain is shown in figure 3. During the young stages of the affected grain its tissue is soft, and its surface is covered by a sweet substance, in which there is an abundance of minute spores formed upon the tips of the fungus filaments exposed upon the surface of the grain. A thin cross section of a grain in this state, is shown in figure 4, with the small spores—some loose and others attached—about the outside. The hard state of the fungus is common to many other species. Fungi, like all other plants, prepare for a period of rest—a winter season it may be called—and they do it in several different ways, one of which is to form a hard mass of some little size, which is able to retain its vitality during a trying time of cold or dryness. The Ergot fungus remains as these hard grains from autumn until the following spring, when, under favorable conditions of warmth and moisture, the grains soften, and a number of stalks grow out from each one, upon each of which a small head is finally formed. This state in the growth of the Ergot plant is seen in figure 5. In these heads the spores are borne, but in a particular manner, and to make this arrangement of the spores understood, three illustrations have been provided. In figure 6 is shown a sectional view of one of the heads. It will be observed that there are numerous pear or bottle-shaped pits in a semicircle, near the surface. In these, the spores are borne; but we are not at the end yet. A single pit, or cavity, is shown much enlarged in figure 7, where the wall is seen to be made up of threads twisted and intertwined, while within there is a number of long sacs. In these sacs are the spores, which are long, slender, and needle-like, as can be seen in figure 8, where a sac is represented as broken at one end, and the spores are shown as escaping. These spores germinate, and the fungus is established upon the young grains of rye, and the cycle of changes is completed. Ergot possesses remarkable medicinal properties, and in proper hands is a valuable remedy. The United States imported 75,550 pounds of Ergot during the fiscal year 1876–1877, which shows that it is used quite extensively. Ergot is a dangerous poison. In some countries of Europe, where rye forms a large part of the food, most disastrous results have followed from eating it in bread and other foods made from rye containing Ergot. In some very moist seasons the fungus is unusually abundant, and following such there is frequently an epidemic of this Ergot-poisoning or *Ergotism*. Those who are poisoned are taken with convulsions, followed, in some cases, by gangrene and loss of limbs, and sometimes by death. Whole families and some villages have been exterminated by this poison. In this country there is little to fear, as we are not a rye-eating people. As Ergot appears on several of the pasture grasses, there is danger that cattle may feed upon it when abundant, and sustain injury. It is considered a prominent cause of abortion in cows.

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.—NAKED SURFACE SPORES.

## Raspberries—Old and New Varieties.

BY W. C. BARRY, MT. HOPE NURSERIES, ROCHESTER, N. Y.

The varieties of the Raspberry are now very numerous, and as each one is represented to possess some special merit, the amateur, as well as fruit-grower, is often puzzled to determine which are the best. For the purpose of giving the many kinds a thorough trial, we planted, a few years ago, in our private garden, a complete collection, adding the novelties as they appeared. The plants have borne an abundant crop this season, and afforded an opportunity to judge of their merits.

Fig. 5.—BRANCHES WITH HEADS.

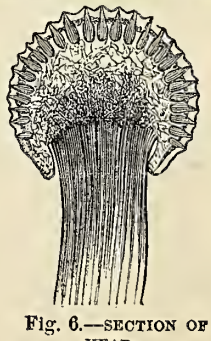


Fig. 6.—SECTION OF HEAD.

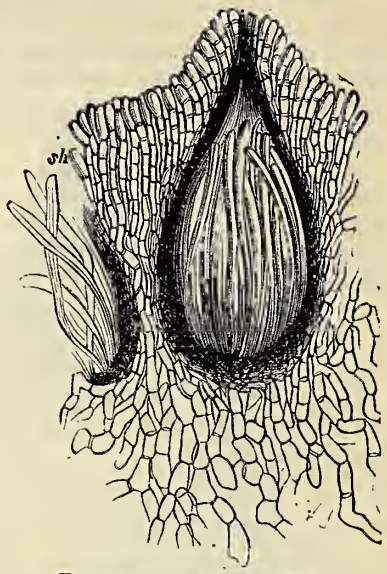


Fig. 7.—SECTION OF CAVITY.

PHILADELPHIA.—The parent of several varieties superior to it in size and quality, is still esteemed in some localities as a market variety. The fruit is too poor to render it of any value for the garden.

RELIANCE.—A seedling from the Philadelphia, and of recent introduction, is of stocky habit, with dark, heavy foliage, vigorous, productive, and apparently perfectly hardy; fruit large, roundish, dark red, firm, with a sprightly, acid flavor, and remains in good condition sometime after it is ripe. Promising for either field or garden culture.

EARLY PROLIFIC.—Another comparatively new variety of the same parentage, is also of stocky habit, vigorous, hardy, and very productive; fruit large, dark red, moderately firm, and of a brisk, vinous flavor, not rich. Its productiveness will make it desirable for the garden and home market, but the fruit is too soft for shipping.

Fig. 8.

HERSTINE.—Said to be a seedling from the Allen, is a vigorous grower, abundant bearer, and quite hardy; fruit large, roundish conical, moderately firm, sweet and rich, valuable for family use and home market.

SAUNDERS.—Claimed also to be a seedling from the Allen, is a strong grower and good bearer, but as the fruit is only of fair quality, it hardly deserves a place in a collection.

HIGHLAND HARDY, which originated in Ulster County, N. Y., is vigorous, hardy, and productive; fruit of medium size and inferior quality. It is the earliest of all the raspberries, and on that account may be included to some extent in every collection, while its hardiness, productiveness, and good shipping qualities render it profitable for market.

TURNER.—A Western variety, is said to excel all other kinds in hardiness. It is a very strong grower, quite productive; fruit moderately firm, juicy, and sweet. It remains to be seen whether it will be valuable for market. In our opinion the fruit lacks the requisite firmness. Its entire hardiness renders it valuable for cold climates, but for this locality we have better sorts.

BRANDYWINE OR SUSQUECO, cultivated extensively in Delaware for market, is a good grower, hardy, and productive; fruit large, firm, bright scarlet, but lacks flavor, bears transportation well, and is regarded as a profitable market sort.

THWACK, introduced recently, is said to be a cross between Brandywine and Herstine, and re-

sembles the former It is hardy, productive, and the fruit firm, but not of the first quality.

DELAWARE, comparatively new, said to be a seedling from the Hornet, has not borne sufficiently to develop its qualities. We are inclined to think it lacking in flavor, probably profitable for market.

BURLINGTON OR PROSSER, an old variety, now rarely met with, succeeds admirably with us. It is very hardy, robust, and prolific; fruit large, firm, and of fair quality. We would give it the preference to many new varieties now grown for market, while it is also entitled to a place in the garden.

HENRIETTA, from Connecticut, is the latest novelty, and remarkable for the great size of some of its berries. They are not high flavored, however, nor are they uniformly of very large size. The plant is a robust grower, hardy, and productive. Some assert that it is identical with Belle de Fontenay, which it resembles in habit and foliage, but we never have seen so many or such large berries on that as the Henrietta produced this season. In autumn, we will compare their later bearing qualities and can then decide more satisfactorily.

CAROLINE, claimed to be a cross between Brinckle's Orange and Catawissa, has not borne with us yet. It is described as a large luscious berry of orange color, and perfectly hardy. The only defect of the Orange is its liability to injury in severe winters. If this variety is of good quality and hardy, it is an important acquisition.

CUTHBERT we have not yet fruited, but if it is as represented, a hardy, firm, red raspberry, of excellent quality, it is just what is required now. We shall watch it with interest.

PRIDE OF THE HUDSON, AND PRIDE OF THE MARKET have not yet been tested. The former appears to be tender with us.

Among the older sorts the *Hudson River Red Antwerp*, so well known and extensively grown on the Hudson River, is not sufficiently productive. *Belle de Pulluau* has not been a success either. *Parnell*, originated near Cincinnati some years ago, is hardy and productive; fruit large, conical, dark red, moderately firm, juicy, quality fair.

CLARKE.—Next to the Brinckle's Orange is, without doubt, the best raspberry for the amateur's garden. The plant is robust, very hardy, and productive. On rich ground it suckers freely, and sometimes requires vigorous thinning to keep it in good condition for bearing; fruit of large size, bright red, and in quality is almost, if not fully, equal to the best foreign sorts. It was raised from seed by E. E. Clarke, New Haven, Conn., in 1856.

BRINCKLE'S ORANGE is the highest flavored of all the raspberries; fruit large, obtuse conical, orange color, soft, sweet, delicious; the best of all for the table. The plant unfortunately is a little tender, and must be well protected in winter.

COL. WILDER is a fine flavored, yellowish-white raspberry, and would be desirable for the garden if hardier and more productive.

KNEVETT'S GIANT is a splendid fruit, certainly one of the finest for family use, but the plants are not sufficiently prolific. Fastolff, another fine berry, does not bear well, producing more wood than fruit. Franconia, like the two last mentioned, fails to produce a satisfactory crop. The berries are of fine quality. Where the winters are not so severe as with us, all three would be of great value.

BELLE DE FONTENAY is a very strong grower and moderately productive. It is valuable only for its autumnal crop, and in order to insure this, many of the suckers must be removed. The fruit is then produced on canes of the same season's growth, as well as on those of the previous year. Many are tempted to discard this variety, but properly treated, it well repays the trouble taken with it.

NAOMI, regarded by some as the same as Franconia, is a distinct variety with us. It is a good red raspberry, but superseded by others. The same may be said of Victoria. English Superb is not productive, and Imperial Red is not worthy of cultivation. Gambon is a good variety, but its place is already filled with good kinds.

MRS. WOOD, of the Philadelphia type, is equally productive, and a much better fruit. It ripens late.

VICE-PRESIDENT FRENCH, raised by Dr. Brinckle from the Fastolff, crossed with Yellow Antwerp, is a first-class variety; canes are robust, branching, hardy, and do not sucker so freely as some kinds; fruit large, firm, sweet, and of fine quality. It ripens quite late. Antwerp Yellow produces a fair crop of fruit, which is not of the highest flavor. Cæsar Blanc, White Imperial, and Jaune d'Anvers are moderate growers and bearers, and the Brinckle's Orange is so much superior to them that they are not worthy of cultivation. Of the

BLACK CAPS, the American and Seneca are superseded by the Gregg and Mammoth Cluster. The Gregg is a variety of great promise. Ohio Everbearing, Davison's Thornless, Catawissa, Elisdale, Ganarqua, and one of the new varieties, New Rochelle, are of such a dirty color and inferior quality that they are not worthy of being included in any collection. The Ohio Everbearing and Catawissa may be valued in some places as fall bearing sorts, but we consider the fruit too poor to be of much value at any season. Of the

YELLOW CAP RASPBERRIES, Hawkins' Orange, which is said to have originated recently in Western New York, is the most valuable. It is exceedingly productive, and the fruit is of fair quality. Minnesota Salmon we have discarded. The Florence, a new sort, is said to be promising. In conclusion, there does not appear to be any among the newer sorts which are destined to supersede the old favorites for the garden. The new Raspberries are nearly all for market, and as such show some progress. For a small collection for family use, we would name the following choice varieties:—Brinckle's Orange, Clarke, Vice-President French, Mammoth Cluster or Gregg. For a greater variety, add the following: Highland Hardy, the earliest; Knevett's Giant, Herstine, Reliance, Belle de Fontenay, fall bearing. For market: Brandywine, Clarke, Highland Hardy, Reliance, Turner, Mammoth Cluster or Gregg.

## The Dyehouse Cherry.

With regard to new fruits, such as have not been subjected to the judgment of any pomological or horticultural society, an editor is peculiarly situated. If he declines to notice a new variety, until it has been approved by some competent society, he is regarded as behind the time; if he presents it, no matter how distinctly he may state the source of his information, and that the account is given as a matter of news, while the fruit remains to be tested in other localities than the one in which it originated, if the fruit turns out to be unsatisfactory, he is blamed for noticing it at all. In view of this state of things, it was with no little hesitation that we gave an account, with illustrations, of the Dyehouse Cherry in Feb. 1872. As this was the first public notice of this cherry, which had been known in Kentucky for 30 years, we have watched its subsequent career with no little interest. While we have received a number of favorable reports, we have not had any of the opposite character, and may regard the Dyehouse as a variety of established reputation. The latest concerning it, comes from Mr. R. J. Black, Bremen, O., who writes: "The Dyehouse Cherry deserves all you said concerning it in your 'Notes from the Pines' last summer, *and more*. It is the hardiest of all cherries. After the extreme cold of last winter, which killed most of the other varieties, leaving only a chance one here and there, as English Morello, Late Duke, etc., the Dyehouse gave us a full crop. Even small trees, three to five feet high, and one and two years old, bore their full quota, standing in the open ground! A good grower, an excellent bearer, of fine medium sized fruit, with very small stone; doing equally well in Ohio, Kentucky, and Tennessee; it is not too much to say, that it is one of the greatest acquisitions among cherries." It is a great pleasure to receive such favorable reports of any fruit, and especially so of one we were the first to notice. Nurserymen should propagate and advertise the Dyehouse.

# THE HOUSEHOLD.

☞ *For other Household Items see "Basket" pages.*

## Home Topics.

BY FAITH ROCHESTER.

### Entertaining Company.

"A big feed"—that is a "good time" in the estimation of many. "What did you have for supper?" one asks of another who has been "out to tea." In the old-fashioned settlements, where the neighbors go "a visiting," spending the afternoon, and busy with knitting or light sewing, it is often suspected by the hostess that her company has come more for the sake of the supper than for the visit. Sometimes this suspicion is very unjustly entertained. I have myself been more than once very much annoyed by the way in which friends I went to visit allowed themselves to be "cumbered with much serving," so that it was almost impossible to have any reasonable conversation with them. I like good things to eat when I am hungry, but I feel almost insulted if that is the main entertainment offered me. I could get something to eat at home, but not my friend's company. The best visits among neighbors, in my opinion, are often those which are unannounced, and where the visitors do not stay to tea, unless very sure that they are desired to do so, and that their staying will not make trouble for the hostess. There is something decidedly vulgar in the great "spread" sometimes made by those who entertain company. So many kinds of cake and sauce—so much indigestible stuff to please the sense of taste and make the visitors ill next day! And yet it is both natural and praiseworthy to wish to treat our friends to something nice in the way of food. Good eating is a privilege as well as a duty. We must eat to live, and so the first question in regard to our food is, whether it will "nourish these frail bodies of ours," as many a man has prayed at the opening of a meal which could "nourish" only by the working of a miracle. Too great a variety is burdensome to both guest and hostess, and it never really proves the liberality of the one who entertains, but often shows only a love of display and spirit of emulation. There should be enough of everything, and each dish should be good of its kind, especially the bread and other solid articles. If we can possibly get a good meal for our visitors—the guests of an afternoon or a single day—without cooking anything while they are with us which necessitates our absence from the room for much time, it is best to do so. [We knew of a case in which two ladies went a long distance to pass the day with the newly married wife of an old friend. This wife was so overcome by the occasion, and so "laid herself out" to show her appreciation of it, that in preparing an elaborate dinner she devoted herself so entirely to it that her visitors only saw her at the table while the meal was eaten, and came away disappointed at not having accomplished their object, which was to *become acquainted* with the wife of their old friend. —ED.] When we know beforehand that company is coming, we can have everything ready to set upon the table, and so spend not over half an hour getting supper. The supper ready, it is our part to make our guests feel perfectly free to eat or not of the dishes set before them—to make them feel by our cordial manners, rather than by words, that we like to share our best things with them, and are pleased to have them enjoy them, while we will not make them eat merely to please us, but let us talk about something besides the food. Cheerful conversation at table promotes digestion.

### How to Entertain Guests.

If feeding our friends is not the whole business of entertaining them, neither is conversation, especially if we talk merely for the sake of talking. Our friends want a chance to look about, to get a general impression of the comfort (or lack of it) of our homes and of the family disposition, to peep into our books, and perhaps to read something which they can have no other opportunity to read. They may be really glad to have us leave them alone for a little. Guests who stay longer than an

afternoon or a day, surely desire some quiet time to think their own thoughts and rest unobserved. It is very hard and wearisome to visit for a few days where you are constantly "entertained" by one person or another, however much beloved and interesting your friend may be. It is of no very great consequence what we talk about, if we are only honest and hospitable to one another's thoughts and beliefs. Even to talk about what we eat is redeemed from vulgarity if we have kind motives—as to please our hostess by sincere praise, or to learn how to do our own cooking more perfectly. Pictures, stereoscopes, games, all these things help in entertaining our friends, and it is the hostess' part to do all she can to have her guests happy, each in his or her own way.

### Will our Children Support Themselves?

This question comes to all parents of small or moderate means as they see their children growing up. Some have a clear idea as to what business they wish their children to pursue, and endeavor to give them a bent in that direction, or to fit them for the chosen occupation. Others watch anxiously for some hint as to the child's natural bent, wondering if he or she is good for anything in particular in the way of practical work. But there are some things which all parents can attend to in the way of preparing their children to support themselves. None are too poor and none too rich to give their children habits of industry and honesty. These will help in every sphere of life, and prepare the way for success in every vocation. Those who really mean to give their children a good practical education, should teach them, or have them taught, boys and girls both, how to build a fire, how to cook plain, wholesome food, how to take care of rooms, how to make and take care of plain clothing, how to make and care for a garden, and (if possible) how to milk and take care of a cow, and how to care for and harness a horse. Is it absurd to say that these things should be considered a necessary part of a good education? Children who learn to do these things well, and who have no false pride to make them more willing to live in idleness, dependent upon the labor of others rather than to engage in honest service, which is usually considered "humble," if not absolutely "degrading," will never fall into vagabondage. [Some may sneer at teaching boys, as well as girls, to sew. The writer's first school was an old-fashioned "Dame's School," where boys and girls were all taught alike, sewing included. In several years of exploration in a wilderness, where one was thrown upon his own resources, we had frequent occasion to be thankful that we were taught the use of a needle. Even in travelling in civilized lands, it often saves much trouble to be able, at a moment's notice, to put a few stitches where they will do the most good. ED.]

### Some Tested Recipes.

PUFF PUDDINGS—Beat three or four Eggs very light. It pays to beat the whites separately, and add them the last thing. To the yolks add three cups of Sweet Milk, a large tablespoonful of melted Butter, and three cups of sifted Flour. Butter ten tea-cups, and bake the batter in these. Eat warm with pudding sauce or sweetened cream, maple molasses, or stewed fruit.

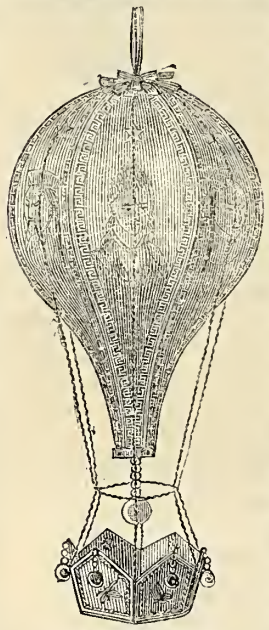
VERY LIGHT WHITE GEMS can be used for a dessert of this kind: Two cups of Sour Milk and two-thirds of a cup of Sweet Milk, a tablespoonful of melted Butter, one Egg. Mix one level teaspoonful of Soda (mashed free from lumps) into a quart of Flour. I am not sure about the quantity of flour—"use judgment." Stir all together well, and bake immediately in gem pans.

FRUIT PUDDING PUFFS.—Make a batter as above, or use Baking Powder and Sweet Milk, with Egg and shortening (or without), and bake it in tea-cups, with fruit of some kind in the middle; that is, partly fill each cup with the batter (which should be pretty stiff), put in a spoonful of berries, or jam, or marmalade, or other preserve, not too juicy, and cover with more batter, leaving room for it to rise. Bake immediately. All puddings of this kind are best eaten warm.

CREAM PUDDING SAUCE (as given by Marion Harland).—One pint of Cream, four tablespoonfuls powdered Sugar, whites of two Eggs beaten stiff, extract of Vanilla one teaspoonful, or one teaspoonful (or less) of Nutmeg. Heat the cream slowly (you can use creamy milk and a little butter) in a vessel set in a saucepan of boiling water, stirring often. When scalding, but not boiling hot, remove from the fire, put in the sugar and nutmeg, stir three or four minutes, and add the whites. Mix thoroughly, and flavor, setting the bowl containing it into a pan of hot water to keep it hot.

## A Hanging Card-Basket.

So long as invitation, wedding, calling, and other cards are used, card-receivers of some kind will be employed, and new designs will be appreciated. A card-basket is expected to be not only useful, but ornamental as well, and in most cases they are made more to fulfil the latter than the former purpose. The basket presented in the engraving is an imitation of a balloon, and is intended to be suspended from a side hook, like those used for hanging bird-cages, and may be hung from a gas-fixture. It is largely ornamental, and allows of a great variety in its construction, and a display of taste in its ornamentation. The basket shown in the engraving is 18 inches long from the attachment to the bottom of the basket, the "balloon" being 8 inches across. It is constructed of white Bristol-board and heavy woollen yarn. The balloon is six-sided, the parts being fastened together by narrow ribbon, which is glued to the joined edges. The basket is made of the same material, and in the same manner. The basket is suspended from the balloon by six portions of the woollen yarn, the balls being of the same material. The sides of the balloon, and those of the basket, are decorated with pictures or flowers, to suit the taste of the maker. When neatly done, this basket is very pleasing, and well serves its purpose.



A BALLOON BASKET.

## Impure Syrups.

Syrup, or "Sugar-house Syrup," as it was formerly called, is the liquid which drains from sugar in the process of refining, though the word has now a wider meaning, and includes sweet liquids of various kinds. A large share of the syrups now sold are not obtained in the refining process, but are made up for sale, and may consist more or less of starch sugar, which is very much cheaper and less valuable than the genuine. Starch sugar, or glucose—formed in nature in the grape (raisin) and some other fruits, and often called grape sugar—has but a fraction of the sweetening property of cane sugar. Its method of manufacture consists in converting the starch mixed with water into sugar by means of Sulphuric Acid. The whole mixture is heated to boiling for some time by means of steam. Chalk is then added to neutralize the acid—the Sulphate of Lime falls to the bottom, and the liquid above it is drawn off and boiled to the desired thickness, and is the syrup—or much of the syrup found in the trade. The method of manufacture shows that there are several ways in which this syrup can obtain impurities. If iron vessels and pipes to conduct the steam are used, the Sulphuric Acid attacks them and produces Sulphate of Iron or Copperas, which remains in the syrup. Salts of lime are also formed with the sugar; and it is easy to see that an excess of either the Sulphuric Acid or the lime is to be expected in such a crude method of manufacture. From the nature of the whole process, and the substances used, a pure product is not to be expected, though it may be made with care. Dr. R. C. Kedzie, President of the Michigan State Board of Health, has given much attention to the subject of impure syrups. Of the many specimens examined by him, we will quote his results with but a single one. "No. 11—A starch sugar syrup, contains in the gallon 141.9 grains of free Sulphuric Acid, 25 grains of Sulphate of Iron (copperas), and 724.83 grains of lime. ....The thought of using such mixtures as a relish for our food is not very appetizing."

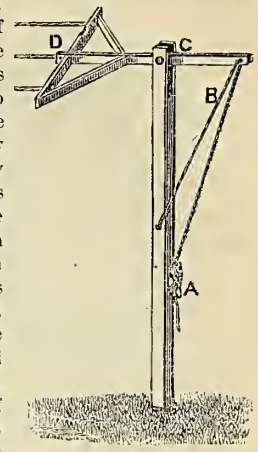



Fig. 1.—CLOTHES LINE BAR.

The blame rests largely with the manufacturers, who must know the character of the product and the fraudulent nature of their work. We do not doubt but what pure grape sugar can be, and is, artificially made, but not generally. The sugar itself, even if it were pure, is very inferior to the cane sugar in sweetening properties—for which all sugars are used. Salts of iron, lime, etc., indicate gross carelessness in the manufacture.

## A Clothes Line Holder.

An improved clothes post, by which the line when filled can be raised, and the use of props or clothes poles rendered unnecessary, may be made as shown in the accompanying engravings. Posts are set in the usual manner and an arm, *C*, is fastened to the top by a strong bolt. The arm should be four or five feet long, with the out part longer than the inner part. The line, *D*, is fastened to the inner part of the arm, loose enough to allow for tightening. A cord, *B*, is fixed to the outer end of the arm and a hole or hook is placed at the post. By drawing down the outer end of the arm the line is raised and kept raised by drawing the cord tightly and passing it a few times around the cleat *A*, as in the engraving.

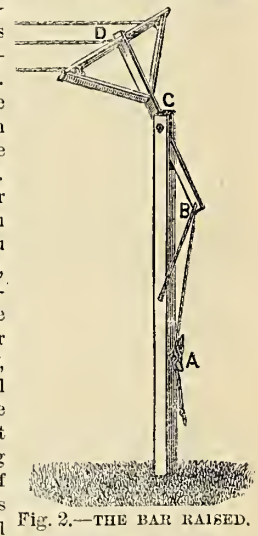



Fig. 2.—THE BAR RAISED.

## Autumn Leaves for Home Decoration.

It is again the time of year to begin collecting a supply of autumn leaves for decorative purposes. Those who are in the habit of making their rooms bright and cheerful by the use of colored foliage need not be told that a large supply is needed, and the greater the variety to select from, the more successful will be the work. Some spend a great deal of time in collecting gorgeously-colored specimens of only a single kind, and find at last a monotony that is not pleasing. If the same time and pains had been spent in gathering many different sorts, very tasteful designs could have been constructed, with sufficient variety to make each separate kind pleasingly prominent. Collect all sizes and shapes, as well as leaves with various tints.

There is but little trouble in drying autumn leaves, as they are already partly dried. When placed between the leaves of a "Pub. Doc.," that is rarely useful for anything else, they dry readily, and, if thick, become rigid. Besides leaves, collect and dry the more delicate ferns, and small vines.

Bright berries and seed-pods of attractive forms should be gathered, and placed in boxes away from dust, as they do not need any priming. A few years ago, while out gathering autumn leaves with a friend, we observed he looked for, and secured a number of, long, leafy branches of the wild, running blackberry. We afterwards, when they were made up, observed how useful they were. The making up of the leaves in bouquets, wreaths, and other decorative work, will be described later, this being only a word of warning to attend to the most important work, the collecting. Some of the most brilliant leaves are found long before the first frosts, and continue until the frost begins its destructive work, daily presenting some new and attractive kinds.

## A Work-Stand for the Lawn.

Ladies who take their chairs to the lawn often find it inconvenient to keep their sewing—their work-basket, etc.—within reach. An ordinary stand or table is too large to carry out, besides, it will often be very "tippy," from the irregularities in the lawn. A cheap and convenient substitute for a table can be made in the following manner: A good hard-wood stick is procured, one end of which is shaved down to a sharp point, figure 1; upon the other end two cleats are nailed—the shape of the cleats, and manner of fastening them, is explained by figures 2 and 3. In figure 4 is shown a cross-sectional view of the top of the stand, which consists of a round board, with cleats so nailed upon the bottom that it will fit as a dovetail upon the cleats on the upper end of the stake. The stand and basket are shown in position in figure 5. It is more convenient to have the top so it can be easily taken from the stake, as it will then occupy but a small place when not in use. It is well to have a cord passing from the top to some place on the stake, to always keep the two parts together. The whole stand is very light; can be easily taken out, and is set by a thrust of the sharp end of the stake into the ground, after which the top is put upon the cleats. It can be placed close to the chair, will not upset, and occupies but little space. The cost is but a trifle; a boy can make the stand.

Fig. 1.

## Household Notes and Queries.

A Housewives' Association has been formed in Berlin, Germany, and laboratory opened for the examination of foods, detection of adulterations, etc., etc. Courses of lectures are given on domestic chemistry, cooking, and kindred subjects. Examinations are held, and prizes awarded. This looks in the right direction, and is a lesson for us.

Fig. 2.

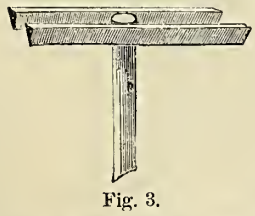


Fig. 3.

Drying Flowers with Sand.—"Mrs. H. D. B.," Mich. Many flowers may be dried and preserve their colors by placing them in perfectly dry sand. The sand removes the moisture, while the flowers, being completely surrounded without and filled within, retain their shape. Full details of the process, quite too long to reproduce, were given in September, 1874, which number may be had for 15c.

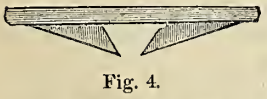


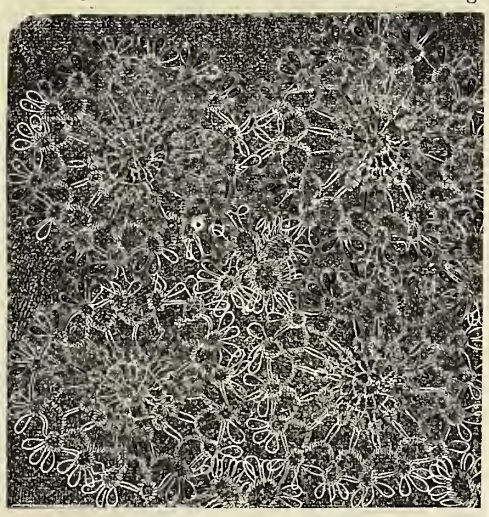
Fig. 4.

Adulterated Graham Flour.—The extensive consumption of Graham Flour has led unscrupulous persons to practice its adulteration. A mixture of bran, middlings, corn-meal, and the ordinary flour, is made and sold as first-class Graham Flour. This muddle of cheap stuffs costs, perhaps, one-half as much as the genuine article.

Flowers in Pickle.—It sometimes happens that it is desirable to preserve a flower, either for some association connected with it, because it presents some unusual structure, or for future examination, when of a kind unsuited for the ordinary process of drying. In either case it may be interesting to know that M. Thuret, an eminent French naturalist, has preserved flowers for 16 years in a saturated solution of common salt. Alcohol is often used for this purpose, but aside from the expense, it extracts the colors from the flowers, and shrinks them.

## A Neat Pattern of Tatting.

If it were not for Tatting, many a garment would go without ornamentation; many an hour would be spent in idleness, and it may be that some mouths would go without food. The art of Tatting has progressed so rapidly that the designs which may now be wrought out of ordinary thread by a little shuttle in skillful hands, is quite surprising. In the accompanying engraving a pattern is shown which combines the elements of simplicity and beauty, and is of such a form as to be easily built out, or enlarged upon, in all directions. The pattern is the single wheel and its attachments. When made in a single row it is used for the edging of garments. If constructed in squares of four wheels—as in the engraving—or nine, sixteen, etc., it makes a tasteful end for a necktie. When the square is larger and made with coarse thread, a fine and delicate tidy for a chair or sofa is produced.



A DESIGN FOR TATTING.

## Recipes.

"Mrs. E. M. S." sends us the following receipes, which she says she has used for a long time, and they have always given satisfactory results:

Sweet Pickles of Watermelon.—Peeled Water Melon Rind, 7 lbs.; White Sugar, 2 lbs.; Vinegar, 1 pint; whole Cloves, 1 tablespoonful, and a few bits of Cinnamon. Add a tablespoonful of Alum to 2 quarts of water, and boil the melon rinds in it until a broom splint will readily pierce them. Pour off the water, add the sugar, the vinegar, and the spices, boil for twenty minutes, when it is ready to can for use. This will make four quarts.

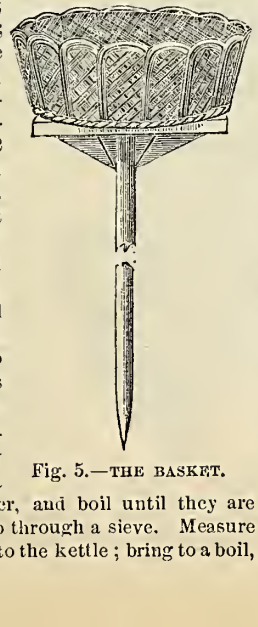


Fig. 5.—THE BASKET.

Crab Apple Marmalade.—Wash and stew the Apples, put into a kettle, cover with water, and boil until they are soft; then pass the pulp through a sieve. Measure the pulp, and return it to the kettle; bring to a boil, and add a pound of Sugar for each pint. Boil until it will "set" when cold, and put it away in bowls or other dishes, out of which the marmalade can be turned in a body. It is very nice.

# BOYS & GIRLS' COLUMNS.

## The Doctor's Talks.

I hope that those boys and girls who are old enough to be interested in these "Talks," will look back occasionally, and bring to mind what has been said in former months. For the last two months we have been talking about what are called the "Internal Forces" of matter. In August, we had that wonderful force called "Cohesion" or the "Attraction of Cohesion," which acts between the particles of matter, and which, as it is strong or weak, makes bodies brittle, hard, elastic, soft, etc. And last month I described what is called "Capillary Attraction" which is acting all around us so silently and so usefully. We can give no more time to these internal forces, but come back once more to

THE ATTRACTION OF GRAVITATION OR GRAVITY.

I say "come back," as our May "Talk" was on that, but we have not quite done with it. You will recollect—and it will be well to go back to that month—that gravity was described as that force by which every particle of matter attracted every other particle of matter. The earth being the largest body (we need not now consider the heavenly bodies), the largest collection or mass of particles, forcibly attracts all other bodies on its surface towards it. If a body lifted above the surface of the earth is let go, it falls—which means it is attracted towards the earth. If a body, like a flat stone, lies upon the ground, and we lift it, we have to overcome the force which attracts it to the earth. If you lift a board of the same size of the flat stone, you will not find it so difficult—you do not have to put forth so much force as in lifting the stone. The strength of the attraction of the earth for other bodies,

WE CALL WEIGHT.

In weighing a body, we measure the strength of the force of gravity. In trade, in the exchange of articles, the greater number are weighed. In weighing, the simple balance, figure 1, is used. This consists of a rod of metal, called a *beam*, which is exactly balanced on a pivot in the center; at each end of the beam is suspended a pan, hung by cords, chains, or wires. If all parts are nicely adjusted, the beam will stand level. There are various other kinds of balances or scales, but we will not talk about them now. Besides scales, there must be weights. These are fixed by the governments of the different countries, and they are not alike in all countries. In this country we use the weights of the mother country, England. The starting point was grains of wheat; 24 *grains* of wheat was the weight of a *penny*, and 20 *penny-weights* made an *ounce*, and 12 *ounces* a pound. This was the origin of our weights, but they have been changed since then, but how or why, I need not now describe. Suffice it to say, that the weights we have in daily use, must agree with the "standard" kept at Washington. To weigh out say a pound of coffee, we place the weight in one scale-pan, and slowly add the coffee in the other pan, and when the beam is balanced, we have a quantity of coffee upon which gravity exercises the same force as it does upon the weight. If the weight be lead, and we weigh lead, the two will be of the same size; if we weigh cheese, the lump of cheese will be much larger than the leaden weight; if bread be weighed, it will be very much larger, and larger still if we weigh cork. If, on the other hand, we wish to know the weight of a substance, we place it—a piece of cheese, for example—in one pan of the balance, and add weights to the other. In this weighing, we get what is called

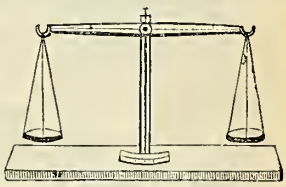


Fig. 1.—A BALANCE.

THE ABSOLUTE WEIGHT

of an article, but it has no reference to its *bulk*. The pound of the different substances mentioned will vary greatly in size. There is another kind of weighing, in which we take bulk or size into the account. We know that a cubic inch of cheese is much lighter than a cubic inch of lead, and that a cube of cork is a great deal lighter than the cheese. But we can not readily make all articles into cubes to learn their relative weights, so we take pure water as the standard with which to compare all solids and liquids. The weight of different substances as compared with an equal bulk of water is called their

SPECIFIC WEIGHT, OR SPECIFIC GRAVITY.

Let us take a bottle of convenient shape, and, after balancing it, weigh into it 1,000 grains of water, and place a

mark to show where the surface of the water comes; now turn out the water, and fill the bottle up to the same mark with alcohol, and weigh it; the alcohol, instead of weighing 1,000 grains will weigh only about .800 grains. If we put honey in place of the alcohol, that will weigh 1,450; the same of mercury 14,000. If we give the specific gravity of mercury as 14,000, or 14, it means that mercury is just 14 times heavier than the same bulk of water. But we can not proceed in this way in getting at

THE SPECIFIC GRAVITY OF SOLIDS.

In showing how this is done, let fig. 2 be a narrow glass jar, in which the water stands at *a*. If you now

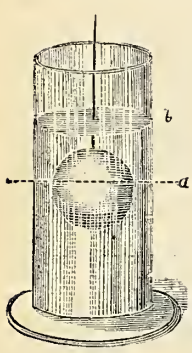


Fig. 2.

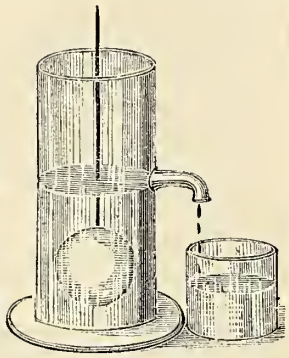


Fig. 3.

place a ball, say of iron, in the water, a quantity of water equal to the bulk of iron will be pushed out of place, and the liquid will then rise in the jar to *b*. The water is pressing in all directions, and in accordance with a law governing the pressure of liquids, helps float the iron ball, and if the iron ball were first weighed in the air, and then weighed as it hangs in the water, it will be found to weigh less. If the jar had a spout at one side, and were filled with water exactly up to the spout, when the ball was plunged in, the liquid displaced by it would run out of the spout, and be caught in the vessel in figure 3. It is easy to see that the iron ball displaces, or causes to run over from the jar, its own bulk of water. If this water that has run over be weighed, it will be found to weigh exactly the difference between the weight of the

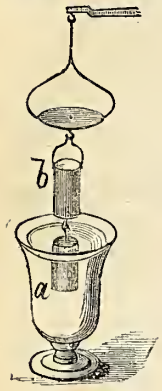


Fig. 4.

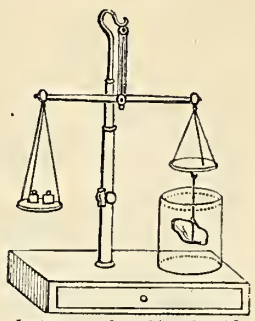

*Instrument for taking Specific Gravities.*

Fig. 5.

ball in the air, and in the water. The same thing is shown in another experiment. In figure 4 there is a cylinder of brass, *a*, and a brass bucket, *b*, into which the cylinder exactly fits. The two are attached to the pan of a scale, as shown in the engraving. The cylinder and bucket are weighed in the air, and it is then so arranged, that the cylinder only hangs in the water; when put into the water, the cylinder no longer weighs so much as it did before, as shown by the pan, containing the weights descending. If now the bucket be filled with water, then the balance will be restored, showing that a body in the water, weighs as much less than it does in the air, by the weight of its own bulk of water.

TO TAKE THE SPECIFIC GRAVITY OF A SOLID,

a delicate balance is required. Figure 5 shows one of a common form. One scale-pan is hung much higher than the other, and has, at the bottom a small hook, a fragment of the material is fastened by a very fine thread —a hair is sometimes used.—It is then weighed in the air, the weight noted, and then weighed in the water, Then find the difference between the two weights, and divide the weight in the air by this. That is, *divide the weight in air by the loss of weight in water*; the quotient is the specific gravity. If a piece of gold weighs 19 grains in the air, and 18 grains in the water, the loss will be 1, and 19 being divided by this, gives 19, which is the specific gravity of gold. When the solid of which we desire the *Sp. Gr.*, (the usual abbreviation for specific gravity) is lighter, we have to modify the operation. —But this "Talk" is already quite too long to allow me to explain that, and some other matters this month.

## The Doctor's Correspondence.

In the hot summer days my correspondence has not been very large. Well, I do not blame any youngster who prefers being out-doors under the shade of trees in the daytime, or who, after the sun has gone down, likes to sit out-doors in the cool of the evening, watching the fire-flies, and listening to the midsummer night's song. ... .Every now and then there appear in the newspapers, descriptions of the growth of

AN APPLE UPON A GRAPE-VINE,

and queer attempts are made to account for it. It occasionally happens that there appears upon the growing shoot of the grape, a green, rounded thing about the size of a Crab-apple, and looking much like a fruit of some kind, as at *a*, fig. 1. If those who think it is a fruit would only cut it, they would see at once that it is nothing but a Gall. It is commonly supposed that galls are found only upon the oaks, while they are borne upon many different plants. All galls are caused by small insects, generally like gnats. These insects pierce the young leaf or the tender shoot, and deposit their eggs. Just as your finger swells up when you get a splinter in the flesh, so do these eggs cause a swelling, and a curious growth is formed upon the leaf or stem in which the maggot from the egg lives and feeds. As the maggot grows, the swelling, or gall, increases in size, and when the insect has made its full growth, it goes into the chrysalis state, and at length comes out a perfect fly. If this grape gall is cut open, it will be found to contain several cavities (*b*), in two layers, each containing a maggot, showing that several eggs were laid in the same place. If you keep an eye open for them, you will find galls upon a great

Fig. 1.—A GRAPE GALL.

number of plants, and however much they may look like fruit, they will be found to be due to some insect. There is one thing very curious about these galls. Different insects deposit their eggs in the same plant, causing

GALLS VERY UNLIKE IN SHAPE

In the grape-vine, for example, several insects produce leaf-galls, which are quite unlike those found upon the stems, and differ among themselves, as do those upon the stem... A friend recently gave me some specimens from a number sent him from Indiana by a gentleman, who stated that they were to be had in large numbers in a quarry. Being from a quarry, you will understand that they are of stone, and if you will look at the engraving made of one of them, you will no doubt say:

"IT IS A STONE INSECT!"

You will not be far out of the way, for though not exactly an insect, it is closely related to that division of animals. It is a fossil creature that was once alive, more years ago than we have any idea of, but which has become a *fossil*, a term applied to animal and vegetable forms, that have been either petrified or become changed to stone, or has left an impression or cast of itself in the sand or mud, which afterwards became hardened into stone. The engraving gives it of the real size; you will see that it has a distinct head, in which are two prominent eyes, and a body with numerous joints or rings; this has two very deep furrows, making it look three-lobed. It is from this peculiarity that it gets its name,

WHICH IS, TRILOBITE.

They are found in all parts of the United States, of course in rocks, differing greatly in size; some are not larger than a pin's head, while others have been found 18 inches long. No living Trilobites are known. Among familiar animals, the nearest to the Trilobite that any of you are likely to see are the Horse-shoe or King Crabs, and only those living on or near the sea-shore will know what these are. Nothing like feet have ever been noticed on the Trilobites, and it is supposed that they, when living, had soft leaf-like bodies to aid them in swimming, which they are supposed to have done, just below the surface, with their backs down.

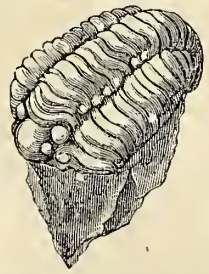


Fig. 2.—A TRILOBITE.

## Our Puzzle-Box.

ANAGRAMS.

1. Hand vise.
2. Vain concerts.
3. Lot aside.
4. Hoes corn.
5. I am Uncle's.
6. Ann stormed.
7. Deter Caleb.
8. Heard a gun.
9. It ran melted.
10. It salts a bun.

PI.

Emos fo het sucsea fo sintyain yam eb tawn fo trinutlsou dofo, gintistamnl skrind, a redray tonymoon fo tilo, scnmural athusexino, dicsemto stessrid, dan myrise.

CONUNDRUMS.

1. What letter provoked my mother?
2. What curious effect did the letter O have upon sister Mary?

NUMERICAL ENIGMAS.

1. I am composed of 33 letters:
My 1, 10, 16, 22, 13, is a weapon.
My 15, 26, 18, 32, 23, 12, 8, 31, is a rambler.
My 6, 5, 4, 3, 9, are parts of details.
My 20, 2, 17, 14, 4, is a well-known animal.
My 29, 22, 23, 19, is a bird.
My 20, 30, 33, 28, is found in the woods.
My 19, 21, 27, is a foreign title.
My 7, 11, 24, 25, is an insect.
My whole is a quotation we should do well to remember.

DENVER C. T.

PUZZLE.

Take five and fifty, nothing and one,
Two-thirds of ten then take,
And if you do the sum aright,
A pretty flower 'twill make.

ANSWERS TO PUZZLES IN THE AUGUST NUMBER.

NUMERICAL ENIGMAS.—1. William Cullen Bryant. 2. Lafayette.

PUZZLE WITHIN A PUZZLE.—When my third happens to be my second he may have my first applied to him; my whole is a bird.—*Whippoorwill.*

CHARADE.—Satire.

ACROSTIC.

D—enteronomy.
A—ntarctic.
N—e.
I—reland.
E—urope.
L—apland.

DIAMOND PUZZLE.

L
BAY
HANDY
SLACKEN
LANCASTER
PLASTER
FATES
TEN
R

W—ashington.
E—ngland.
B—ijou.
S—T. Lawrence.
T—opeka.
E—vansville.
R—io Grande.

SYNCOPATIONS.—4. Crow—cow. 2. Cart—eat. 3. Bread—bead. 4. Meat—mat. 5. Clock—cock. 6. Pain—pan. 7. Coat—cot. 8. Load—lad. 9. Dime—die.

TRANSPOSITIONS.—1. Sharer, rasher. 2. Same, seam. 3. Shrub, brush. 4. Dimple, limped. 5. Dirge, ridge.

AN ENIGMATICAL TEA-TABLE.—1. Ham. 2. Milk (changed from silk). 3. Tea (T). 4. Damsons. 5. Tongue. 6. Coffee (cough-fee). 7. Bread (B † read). 8. Molasses. 9. Sausages (saw-sages). 10. Radishes (ray).

CONCEALED TREES.—1. Ash. 2. Elm. 3. Pine. 4. Fig. 5. Larch. 6. Linden. 7. Maple.

PI.—A popular writer, speaking of the ocean-telegraph, wonders whether the news now transmitted through the salt water, will be fresh.

## A Lesson in Drawing.

There are many grown persons who often say, "I wish I had been taught to draw when I was young." It is a fact that drawing is one of the important, practical branches of an early education, which is sadly neglected, if not entirely overlooked. It has been said that "whoever can learn to write, can learn to draw," and this is true so far as the most useful kind of drawing goes. One great use of drawing, is to describe objects, which a few lines will present more clearly than can be done by a great amount of writing. We propose to give, now and then, some lessons, with examples to be copied, which will, we hope, be useful to both boys and girls.

It will be observed that all the illustrations here given, are purposely made with straight lines. A straight line is the easiest for any one, old or young, to make, if provided with a ruler, or simply a stick which has a flat side, to fit down upon the paper or slate, and one edge straight, along which the slate-pencil or lead-pencil is to be drawn. We made our lines with the aid of a folding two-foot rule, which we bought not long ago for 20 cents. Small folding one-foot pocket-rules are sold on the streets of New York, for ten cents. It is best then to have a rule, as they cost so little, make a nice thing to help fill a boy's pocket, and besides, with it you can measure the length of each line and be more exact, making the drawings look more like those of an architect, who draws the plans of houses, or an engineer, who makes such nice pictures of bridges, engines, etc. If a rule of this kind is not convenient, you can mark your ruler or straight-edge, with inches, halves, and quarters, and perhaps eighths and sixteenths, if you are careful, using a rule for a guide, and a pencil for the marks. If you can do no better, a piece of

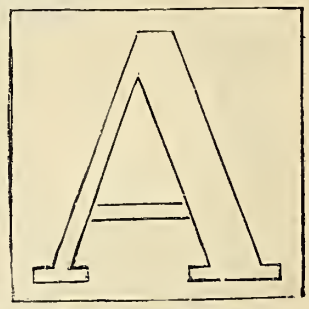


Fig. 1.—FRONT VIEW.

stiff paper will make a useful rule. Besides the rule, there will be nothing more needed for drawing straight lines, than the pencil with which to draw them, and the paper or slate upon which they are to be drawn.

In representing a surface, as the side of anything, like the cover of the *American Agriculturist*, the boundary lines are drawn simply; only *length* and *breadth* are re-

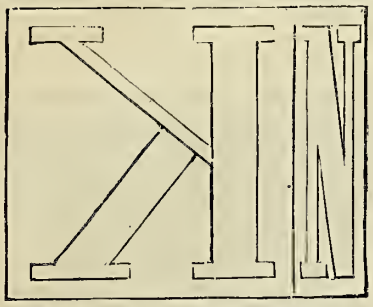


Fig. 2.—AS SEEN WITH RIGHT EYE.

presented. All this is not difficult. To add *thickness* to the surface dimensions, and thus represent bodies that will hold something, as a box, other lines must be drawn. Suppose we have a *cube*—which is a body having six equal sides—and we wish every one would find or make such a body; those who have the cubical letter-blocks, one of which we have used for our illustrations, are provided at once—it can be so placed that only the front side can be seen, provided you shut one eye and "look it square in the face." Four lines of equal length, the opposite ones parallel, will bound the side in view. Draw four lines on your slate or paper (fig. 1), represent the block as you see it, and does the figure look solid?—does it look as if it would hold any wheat, water, or anything else? Four straight lines cannot represent a cube. Now, turn the cube a little one way or the other—we will say both, because you will do it anyway—and you

Fig. 3.—AS SEEN WITH LEFT EYE.

see two sides of the cube in each turn. Draw lines to show these two sides. There are two sides now represented, but it does not look solid yet. If the block is a small one, and held rather close to your eyes, or rather the nose, and you look at it with the right eye alone, you see the block as in figure 2. Hold the block still, and look with the left eye only, and it becomes figure 3. Squint back and forth a few times, and the right and left sides will come into view and go again. This all comes from the two eyes not being in the same place in your head. If the block is still held, and looked at with both eyes, both of the sides will be seen, as well as the front, and thus seeing three sides, the idea of a solid *may* come. Turn the block a little, up or down, keeping the two

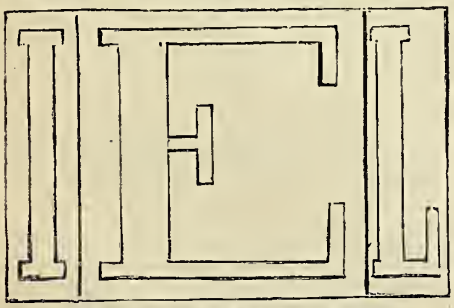


Fig. 4.—AS SEEN WITH BOTH EYES.

faces in view, and you see that a third—we will suppose the upper one comes into view—what a change this makes when drawn upon the paper! It *does* look like a cube now. Though you can see only three sides, you feel that the other three are there, or else there is a cave, or hiding-place behind. It requires three sides in view, to suggest solidity. For practice as well as pleasure, try the cube in several different positions—the number in which it can be placed is very great. Figure 5, shows it with but little of the upper surface in view. In the next figure it is represented as if suspended by a pin and string from one of the six corners. Draw one of the faces, as the one with *W*, and observe its shape before the other sides are added to it. It is to be remembered that the opposite sides of a face or side of a cube, are always parallel, *i. e.*, they run in the same direction. It will also be observed that it takes nine lines to represent a cube with three faces in view, and these lines are in sets of threes, each set having the same direction. After using the blocks for a while, put them away and draw from memory. It will not be long before a cube can be put down on paper or the slate without trouble, an extra line, or mistake. The letters on the blocks in the engravings are to relieve the blank lines, not intended to be educational—you are expected to know your letters. They are constructed entirely of straight lines, and it would be good practice to draw them after the cube is made.

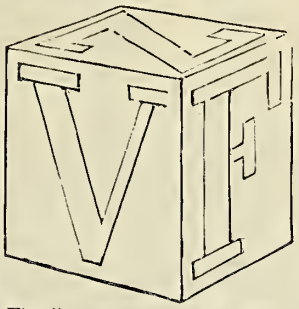


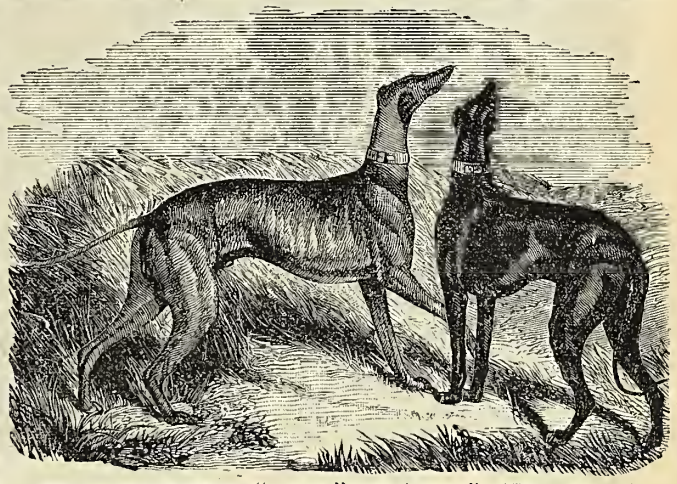
Fig. 5.—UPPER FACE IN VIEW

## Dogs and Their Ways.

There are not many boys, if they had their own way, who would not *own* a dog. Is there a more companionable, faithful, courageons, and intelligent friend to be found in the whole brute creation than a dog? Keen-sighted, thoughtful, and sagacious, the dog has been from the earliest time, and will continue to be, the pet of pets with men as well as boys. He is so easily taught, and often exhibits such noble traits, that we can not but look upon dogs, as a whole, with respect, however much we may despise some particular dog which we have met or has met us. The attachment of a dog for his kind master, who is thoughtful of his feelings, and does not "treat him like a dog," is almost beyond measure. He will suffer all the privations of war, travel in a wilderness, and even meet death, in order to remain true and faithful. Cases are related where a dog has followed its dead master to the grave, never to leave it alive—refusing all sympathy and food, expiring after prolonged sorrow upon his kind master's grave. We heard, not long ago, of a true story—not all dog stories are true—of a dog that had been sent by express from his old home and master in Connecticut, to a son of his master who had settled in Iowa. The dog's journey was a long and dark one, as he was shut up in a car all the way, and when he arrived must have been tired, as well as a stranger in the new home. The change was too great for him—even the cats, sheep, cattle, and house were new to him; and without further notice he was not heard from until some three weeks later, when he appeared at his old home in Connecticut, foot-sore, poor, and nearly dead, though with a heart full of joy at the sight of his master. How that poor dog found his way and his living—for he must have eaten something on his long, homeward journey—no one will ever know. He probably did not, "tramp-like," steal a ride on the cars, but "footed" it all the way. Some breeds of dogs have a particular part of their nature highly developed; as, for example, the Bloodhounds, which can detect the smell of blood at a great distance. These large, ferocious dogs are still in use in Cuba for tracking and capturing runaway slaves. The power of smell is wonderfully developed in some kinds of game dogs; for example, the Fox-hound. In order to test the acuteness of this power, a dog-raiser took some puppies away from their mother while very young—so she should not tell them about the foxes—and kept them shut up in a city, out of sight and odor of any game, until they were old enough to hunt, when they were taken in a tight box to the distant country, and the box opened upon the trail of a fox which had passed some hours before. The young dogs not only scented the fox, but started off after him in the right direction. Here we have a dog running after a fox which it had never seen, and, more than that, had never seen any fox. The same wonderful powers are possessed by the young of bird dogs dogs that are born of parents that have been trained to hunt birds, as were their fathers and mothers for many generations. These peculiar traits of dogs become a part of their nature, as much so as that of a young duck to run to the water, or a boy after a band of music. As well try to stop a dog wagging his tail when kind words are spoken to him as to keep a Pointer from *pointing* or a Setter from *sitting* when opportunity is offered them. A number of years ago we were acquainted with a large Newfoundland dog that was much attached to its master, who did business in a city, and went in and out daily on the steam cars. The dog lived by the side of the track near the depot, and saw the trains pass every half hour, but would pay no attention to them until the four o'clock train came, when he would begin to run and bark, and insist upon being let out, when he would go to the depot, meet his master, and was not satisfied until he had the newspaper in his mouth. To the human eye and ear those trains were all alike, but the dog knew, and we could only wonder. Dogs get very sharp sometimes. It is related of one—who was in the habit of receiving a half dime to buy his breakfast at the butcher's—that one day he found a heap of round bits of tin, each the size of a nickel, and upon presenting one of them, the butcher, thinking it too good a joke to pass unrewarded, gave the dog a full allowance of meat, when in a few moments the dog returned with another piece of his new money. This was too much for the good nature of the meat dealer, and he gave the dog a severe look and something of a scolding. That dog never took any more tin bits to the market, and ever after would accept only paper money from his master, always trading at another



Fig. 6.—AS SUSPENDED BY A CORNER.



SMOOTH GREYHOUNDS, "DAVID" AND "RIOT."—(*See next page.*)

KING CHARLES SPANIEL, "JUMBO."—(*See next page.*)

shop, never even going in front of his old butcher's place. Just what the dog's feelings were can not be described, because they can never be known to us.

We have heard of cases where dogs were the principal actors in thieving and other crimes, and were so skillful as to baffle the police. The discovery of the case in mind was made by a boy—not an exception to the general rule. There were three parties, two women and the dog, and they made a business of stealing laces, and other light valuable goods. One woman, accompanied by the dog, would call at a store, and he shown some lace, a piece of which she would manage to drop to the floor, when the dog would take it in his mouth, and run off with it to the second woman in the street. For a considerable time various stores lost goods almost daily, and several expert detectives were employed, when at last the door-boy saw the lace drop and the dog pick it up, and the whole three were caught, tried for shoplifting, and imprisoned—dog and all, we suppose.

Dogs, as you know, are of all sizes, shapes, colors, etc. The English Mastiff often weighs 200 pounds or more, while those of some varieties, when full grown, do not exceed a half-a-dozen ounces. Such dogs are carried in a lady's pocket. They have never been caught doing any damage to a flock of sheep or other domestic animals.

The pictures of two famous English Smooth Greyhounds, "*David*" and "*Riot*," both of which have taken many prizes, are shown in the first engraving. We in America, especially those living away from the large cities, have but little idea how much is made of fox and other hunting by the English people. They have there over 20,000 of this single breed of hunting dogs. These dogs, as the engraving shows, are in every way built for speed. The head is small and very pointed, the body long, but with a very strong back, the limbs long and slender, and a tail like a whip. Don't you think that these dogs enjoy a good run? They had rather run than eat. Some other breeds are made up of those that had rather eat than run, and we will introduce you to such a one in the second engraving—"*Jumbo*," a King Charles Spaniel. Notice the contrast in his "stub nose," or "pug," with those of the Greyhounds. What a large, full eye he has! and what a round head. What ears, as compared with those in figure 1—long, with flowing silky hair, which hang by the side of and half cover the short neck and shoulders. His tail, just the opposite of his neighbors', is short, with long hair. These Spaniels are small, weighing from four to eight pounds, and are kept solely for ornament, and well serve their purpose. Such pets fare sumptuously every day, and are doubtless of that class of which the attractive owner may well say, "Love me: love my dog," to her gentlemen admirers.

## "Should Owl'd Acquaintance be Forgot."

Among the noises of childhood that are still ringing in my ears, is that of the Screech Owl. In my younger days, like many good boys—mind you, I do not say I was a good boy—I lived on a farm (sometimes I wish I was there still), and held the rank of *Cow-Boy*. I had the pleasure of every day running down a long lane, at the foot of which was a pair of bars—very heavy bars that did not move easily—behind which, the cows should be standing in waiting for my coming. But, through forgetfulness, obstinacy, or other cause, they frequently were not there, and away down through a deep "gulley," along a winding roadway, under dark, dismal hemlocks, and the shadow of great rocks, I was obliged to pass; then over a "water log," off which I remember falling once (yes, more than once), and then up a deep, dark ravine I would go in search for the stray animals. Hunting cows in a deep woods, that has a deep gulley and a shallow stream running through it, with the flood-gates gone, is not altogether funny, especially if "the shades of night are falling fast," and you havn't had your supper. One night—it was after a thunder storm, in which the lightning had struck and shattered an old oak into little fragments—the cows were gone. I had no special fondness for thunder showers, and if there had been a night when I hoped that the cows would be on hand, it was that one. "But it never rains but it pours." It poured that night. There was no other way for me but to go on into the dark woods and along the stoney "gulley" road in which the muddy water was crossing here and there. It was all still, save the roll of the distant thunder. The sun had already set, as the shower was a late one, all of which made matters worse for me. I longed for a companion—some one to talk to me as I ran along, now and then giving a half choked *Co-bos*, *Co-oo-boos*, which fell unheard upon the darkened and heavy air. Besides all this, the thought that a wild-cat had been killed during the past week within a mile of where I was (some of the neighbors called it a "link"), kept itself uppermost in my mind—in fact I thought I could see its eyes glaring at me from behind a dark rock, and I armed myself hastily with a stone and stick from the pathway. It was growing darker and no cows could be seen, but I pressed on up a ravine where I knew they often went. Suddenly the stillness was broken by a strange sound—under the circumstance, it was so sort of awful—like a distressed child—that I confess I was a trifle frightened, if not more so. I paused and held my breath for a moment, and felt something go thump—thump—thump—against my breast in rapid succession, but it soon passed away, and on I went. Again the sound of the child, and yet not like a child, and again the thump—thump. A little further, and again the dismal sound. At this, my courage came, and I resolved to know what all this was about, and following the sound, I crossed a little creek, when I stood and listened, and in front and above my head sat two old *owls*. Close side by side they sat, as harmless as two kittens, with their great eyes upon me. I felt pleased, but having no time to spare, I stepped forward, when my owls, as quietly as mice, sought another branch on some distant tree, where they, I suppose, watched and talked to each other until long after the time when children should be in bed. My cows were lying in repose a few rods beyond, so it turned out that the big-eyed and long eared birds had *seen* my cows and *heard* my call, at least they had *actually helped me in my search*. They led me out of my intended course, and to where the cows could be found. How often it is the case that, that which at first makes us sad—causes us pain—will at last lead us to a world of joy! I shall not forget how the first sound of those owls scared me. If it had been my own brother calling my name, I should have been as greatly startled.

A MIDNIGHT MOONLIGHT MEETING.

The artist has attempted to reproduce the two friends of darkness, and I leave it for you to judge how well he has succeeded. Look at their great eyes, half as large, and somewhat resembling the moon beyond them. How they stare at you, as much as to say, "Why are you out so late at night? This is *our* day, not *yours!*" They seem to have some project in view. Some matter is being thoroughly discussed. Who knows but what they are making arrangements to live together, and this is a view of one of the stages of owl courtship? The artist evidently thinks so, as he has placed a great flower in their claws, as a token of screech-owl regard. We are not inclined to believe that such flowery times ever come in the life of an owl. If it were a mouse that the lovers were considering, it would be more "life-like," but I must not take the poetry out of this midnight, moonlight meeting, even if it seems a little imaginative to—UNCLE HAL.

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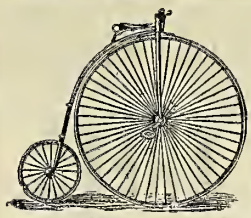

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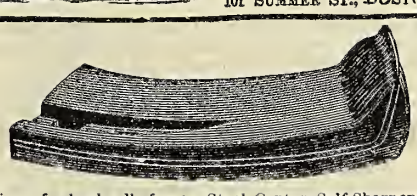

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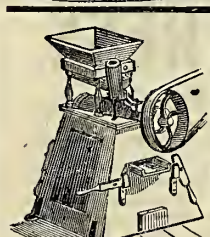

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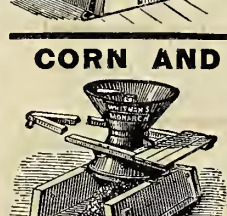

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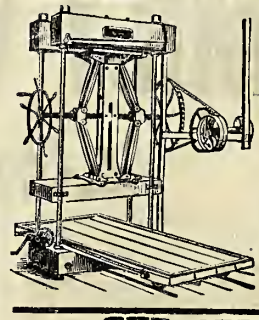

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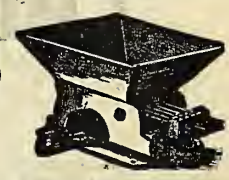

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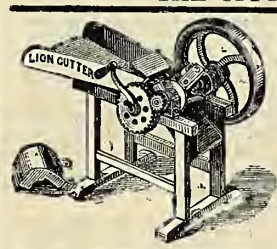


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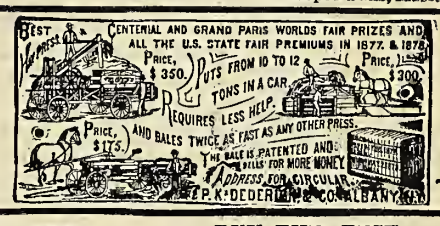


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SILVER & DEMING Manuf'g Co., Salem, Ohio.

**THE CHAMPION**

**Is the Best Wind-Power in the Market.**

Is perfectly self-regulating, runs no faster in a gale than in a light wind, is very powerful, and never blows away while the tower stands.

We also manufacture the **Iron Screw Wind Mill,** and the Celebrated **Star Wood Pumps,** with porcelain lined iron cylinders, wood cave-trough, tubing, etc., etc.

Send for Catalogues.

**POWELL & DOUGLAS, Waukegan, Ill.**

We manufacture the old reliable **Stover**—the well tried, strong, durable self-regulating, solid wheel **Wind Mill,** which took *the* Centennial Diploma, as well as a Medal. Others may talk, but we refer to the **Official** Centennial Report. Also O. E. Winger's Improved $20.00 Oscillating Feed Grinder, which is operated by 10 and 12 ft. Pumping Wind Mills—a novel and perfect Mill for grinding all kinds of grain for stock and house use. Agents wanted everywhere. Branch factory at Greencastle, Pa. Send for catalogue to

**STOVER WIND ENGINE CO., Freeport, Ill., U. S. A.**

**The Best Fanning Mill in the World.**

BUY THE **A. P. DICKEY Fanning Mill.**

No good Farmer can afford to market dirty grain.

A moderate quality of grain, well cleaned, brings a better price than the nicest grade in dirty condition.

Address **A. P. DICKEY, Racine, Wis**

**ONE CENT WEEKLY.** **Largest CENT PAPER IN THE WORLD.** 8-page, 40-column Literary Family Journal, 50 cts. a year. Samples free. Agents Wanted. Hartley & Hynes, Publishers, 17-21 Hickox St., Cleveland, O.

# THE ROBBINS
# FAMILY WASHER AND BLEACHER

## AGENTS WANTED.

In bringing this article before the public it becomes necessary to take into consideration

THE ART OF CLEANSING FABRICS,

which is yet so imperfectly understood. Having had a lifeloug experience in the laundry business, in connection with first-class hotels, public laundries, asylums, hospitals, etc., we know whereof we speak. The numerous devices of friction rollers, pounders, squeezers, mashers, agitators, steam wash boilers, etc., have all failed in one or more of the three essential points, namely, the saving of labor, wear and tear of clothes, or in perfectly extracting the dirt and discoloration, all of which are accomplished by the ROBBINS FAMILY WASHER AND BLEACHER.

WHAT IS IT REMOVES THE DIRT?

You may ask washerwomen and housekeepers, and your answer from nine out of ten will be, "Plenty of elbow grease," or in other words, laborious rubbing upon the washboard. And such is the case, for you first rub soap upon the cloth, and then you have to rub it in to make the dirt soluble; but does that remove it? No, to do that you must dip it in the water, and rub repeatedly to force water through the fabric again and again. That is what removes dirt after having been softened by the chemical action of the soap.

The way in which this could be most economically accomplished has been developed in the FAMILY WASHER AND BLEACHER, which embodies all the above points.

It is harder work to operate these mechanical devices than to use the common washboard. They are constantly getting out of order, and wear out in a short time. They wear out clothes faster than the rubbing board, because the friction is a hundred per cent greater.

Mechanical devices take the entire time of a person during the whole wash, and will not remove streaks from clothes. With the Washer and Bleacher, washing, baking, and housework are contemporaneous operations, the fire doing the washing and baking, while the housewife does her housework.

All who have tried steam wash-boilers, will unite with us in saying: They do not give satisfaction.

WE WILL EXPLAIN WHY.

As stated water force is what removes dirt from the fibres of the cloth. A large body of water is required to hold in solution a comparatively small amount of dirt. Steam wash boilers can not accomplish the desired result. They do not contain enough water to hold the dirt in solution While steam will not remove dirt, it is a powerful agent to assist in cleansing, because it expands the fabric, and causes the discharge of dirt and impurities from the cloth that can not be forced out in any other way unless by the application of heat and force of water combined.

In order to remove the dirt from steamed clothes, they must be washed out in water at nearly boiling heat, for if you use water at a lower temperature, it causes the fabric to contract, which "sets the dirt," thus causing the clothes to turn yellow. An essential thing to be mentioned is the rotting of clothes by steam wash-boilers, because of the small quantity of water used.

Everybody knows that a large quantity of soap dissolved in a small body of water must necessarily form an exceedingly strong alkali, which, after the clothes are packed in the steam wash-boiler, is converted into steam, every moment becoming more concentrated, until the clothes are removed. A few such washings, and what is the result? Simply this: Your clothes fall to pieces of their own weight, and you pronounce steam wash-boilers, as they are, a failure.

THE PRINCIPLE OF THE WASHER AND BLEACHER

embodies all the essential points. First, we have the desired heat, which expands the fabric, and causes it to discharge the dirt. Second, we obtain a powerful suction beneath the clothes, which produces a rapid downward current or water-course through and through them, thereby removing the dirt. Third, we use a large body of water, which holds the dirt in solution. Fourth, we use but a small quantity of soap. Fifth, the washing is done by water, and not by steam. The process can not injure fabrics It cleanses thoroughly, rinsing the clothes being all that is required to complete the operation.

THE CAPACITY OF THE WASHER AND BLEACHER.

There are three sizes: No. 1, the family size; No. 2, suitable for small hotels, restaurants, barber shops, boarding houses, etc.; No. 3, or steam-power washer, into which is conducted, through a ¾-inch pipe, live steam from the steam boiler, from which is obtained the power for driving the water. This washer takes the place of machinery in places where steam power is used in the laundries.

The washer is composed of metal, and can not get out of order.

The family size weighs about five pounds, and is only 8 inches long by 5 inches wide, and 1¾ inches deep.

The discharge pipe is 13 inches high over that, and is 1¼ inches in diameter. It throws water in a solid, unbroken stream at the rate of ten to twelve gallons per minute. It will work in any family boiler. It takes only three or four ounces of soap to ten or twelve gallons of water, and will wash bed and table linen, a boiler full in ten to fifteen minutes, wearing apparel in from twenty to thirty minutes, and will remove streaks without rubbing; requires no previous preparation of the clothes, such as soaking over night. We take the clothes dry, and when the washer gets thoroughly at work, we fill the boiler as full as it will hold by gently pressing them down with a stick. We use no chemicals, only good soap and soft water. If the water is hard, it may be softened by a small piece of borax, which is harmless.

For LACE CURTAINS the Washer is invaluable. It cleanses them as no other process can, and without the slightest danger of injury.

The No. 2, or small hotel size, will do the work in a boiler four times the size of a common family boiler, and wash of average pieces from 1,500 to 2,000 per day; or it may be used in any smaller boiler. They will work in anything that has a flat bottom large enough for them to rest upon.

For hospitals, this Washer is pronounced by the medical faculty invaluable, being the most powerful disinfecter known, leaving the fabric as pure as when new. By engineers, mechanics, and scientific men generally, it is pronounced one of the most wonderful discoveries in the principle of hydraulics or water-force ever brought to light. By bleachers and chemists it is said to be the most powerful method of removing dirt and vegetable matter from fabrics ever known. It is the greatest bleacher extant, and for that alone is worth ten times the price.

THE PHILOSOPHY OF THE WASHER AND BLEACHER is this: We have five pounds of metal, which attains a much greater degree of heat than the water surrounding it; consequently the water underneath the Washer becomes hotter and more expansive than in any other part of the boiler, and is thereby thrown to the surface through the tube, thus tending to produce a vacuum underneath the Washer at the bottom of the boiler, into which the water is rapidly drawn.

As it passes along the channels of the Washer, the curved and contracted throats of the same prevent its flowing backward, and being held in contact with the hot metal it becomes hotter and hotter, consequently more expansive and more forcible, until thrown to the surface, thus producing a powerful suction beneath the clothes, through which the water must pass in a rapid downward current, thereby obtaining a water force which can not be obtained by any other method known in cleaning fabrics. Thus, we get a combination. First, we have the desired heat. Second, perfect chemical action of the soap Third, force of water—all of which are required to thoroughly cleanse and purify any fabric.

THE IMPROVED WASHER

The improved Washer has a perfect fitting pipe, and is a combination of metals which does not become sticky or dirty. It comes out of the boiler as bright as new

A WORD ABOUT BLEACHING

There are few professional bleachers in the United States. The word "bleaching" implies the art of extracting vegetable or animal matter or discoloration from the various fibres which constitute all our different fabrics. This is done by a regular chemical process, consisting, first, of alkaline boilings; second, immersions in solutions or chloride of lime; third, solutions of acids. After each process the goods receive a thorough rinsing in clear water; then, last of all processes, to thoroughly extract all injurious matter, comes that of boiling in good soap and water. This leaves the goods pure and white as snow, ready to finish for the market. Now the question arises: Can those fabrics again absorb and fix all their natural discoloration? We answer no; impossible. Then why is it (asks the housewife) my clothes become yel ow and discolored? There are many reasons—poor soap, hard water, careless servants, not having strength to rub out the dirt yourselves, and not being able to use water hy hand hot enough to keep the fabric expanded to the extent which is absolutely requisite to thoroughly extract the dirt or "bleach the clothes." Clothes should never be bleached but once, but thoroughly washed, and they will always be white. THE FAMILY WASHER AND BLEACHER will do it for you every time.

THE INDUCEMENTS WE OFFER.

We want a Local Agent in every town in the United States. We know from experience that reliable, energetic men can make money selling the Washer and Bleacher in any community.

We want first-class men as GENERAL AGENTS; men capable of managing one or more counties.

To such men we give a duly executed LICENSE.

We furnish descriptive circulars for distribution among families. Also large posters for advertising in public places.

The retail price of NO. 1 WASHER is $3.50; NO. 2 WASHER, $5; NO. 3, OR POWER WASHER, $50. Special terms to agents for No. 3 Washer.

TERMS TO GENERAL AGENTS.

No. 1, $24 per dozen; No. 2, $36 per dozen.

SAMPLE WASHERS.

In States east of the Missouri and Mississippi Rivers, also in Kansas and Nebraska, we will deliver at your nearest railway express office, CHARGES PREPAID: Sample No. 1 Washer, $3.50; Sample No. 2 Washer, $5. We will deliver, prepaid, a No. 1 Washer in Dakota, at Bismarck or Yankton, for $3.50; in Wyoming, at Cheyenne, for $3.50; in Idaho, at Franklin City, for $4.50; in Colorado, at Denver or Pueblo, for $4; in New Mexico, at Santa Fe, for $5; in Arizona, at Prescott, for $8.50; in Utah, at Ogden, for $4; in Nevada, at Virginia City, for $5; in Louisiana, at New Orleans, for $3.50; in Arkansas, at Little Rock, for $3.50; in Texas, at Corsicana, for $4.50; at Texarkana, Denison, or Sherman, for $3.50. For the Pacific coast, we will deliver No. 1 at San Francisco, Sacramento, Marysville, or San Jose, for $4. Our reason for so doing is to induce people to investigate this matter, feeling assured that a trial will secure an agent for us.

The great saving in time, labor, and material, and the extremely low price of the Washer, bring it within the reach of all. It can not get out of order. It does the work rapidly and well. These points commend it to every one. Send for a sample; try it; show it to your friends; get their orders, and if you wish to secure a county or town, don't delay, but let us hear from you at once. Remember the old maxim: "First come first served."

In territory where there are no Agencies established, to persons desiring a Washer for their own use, we will deliver the same, CHARGES PREPAID, on receipt of price as stated above. You can readily determine when there is an Agency established, as posters will be put up in conspicuous places, and circulars distributed.

SPECIAL NOTICE.

As to the reliability of this Company, we refer you to the notice in another column of the editor of this paper. Also to the MERCANTILE NATIONAL BANK of this City, or to any Express Company in New York.

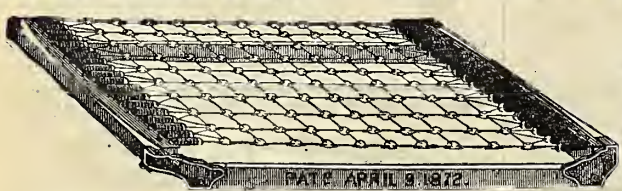
In ordering, write plainly your name, post-office, County, and State. Also the name of the express office to which you wish the Washer forwarded.

Cash must accompany all orders. Remit by post-office order or registered letter, at our risk. We insure the safe delivery of all washers ordered as above. Money may also be sent by draft on New York.

**Address BISSELL M'FG. CO., 50 Barclay St., New York.**

AT ALL TIMES WHEN YOU ORDER OR WRITE, MENTION THIS PAPER.

# NATIONAL WIRE MATTRESS.




NO SAGGING OR ROLLING TO THE CENTER ON THIS BED.

**This is the very BEST and most DURABLE Spring Bed THAT MONEY CAN BUY. Do not confound it with any Woven Wire Mattress. The American Agriculturist says: "We have tried the article made by the National Wire Mattress Co., of New Britain, Conn., and find it to be as nearly perfect as need be."**

**Delivered to any R. R. Station in the U. S. or Canadas, free of charge, on receipt of $10.00.**

**Address NATIONAL WIRE MATTRESS CO., New Britain, Conn.**

**FELT CARPETINGS** 20 to 45 cts. per yard. **FELT CEILING** for rooms in place of Plaster. **FELT ROOFING** and **SIDING.** For circular and Sample address C. J. FAY Camden, N. Jersey.

A WONDERFULLY INTERESTING BOOK, ENTITLED

## THE SCHOOL GARDEN.

BY DR. SCHWAB, DIRECTOR OF THE VIENNA MILITARY GYMNASIUM, ETC.

From the German by Mrs. Horace Mann.

**50 cts. by mail. 5 copies $2, 12 copies $4.**

M. L. HOLBROOK, Publisher, 13 & 15 Laight St., New York.

## $70 PER QUARTER OF 10 WEEKS.

$280 for Academical year, from September 9, 1879. Books, etc., included, whole expense for young men and boys at S. C. SHORTLIDGE'S Media (Pa.) Academy. Music the only extra. Highly recommended by Bayard Taylor, Hon. Fernando Wood, Judge Van Hoesen, Gen. C. H. T. Collis, Gov. Rontt, Rev. Dr. Childs, etc. 10 teachers, all men and all graduates. Special attention to both advanced and backward pupils, and young boys. Both individual and class instruction, combining the advantages of private tutoring and school-room drill. Fine building, thoroughly heated, new gymnasium, excellent table. English Business, Scientific and Classical courses of study. Weekly Lectures, illustrated by the best apparatus. For new illustrated circular of term commencing September 9th, address

**SWITHIN C. SHORTLIDGE,** (Harvard University A.M.), MEDIA, Pa.

Media has seven churches, and a temperance charter prohibiting the sale of intoxicating drinks.

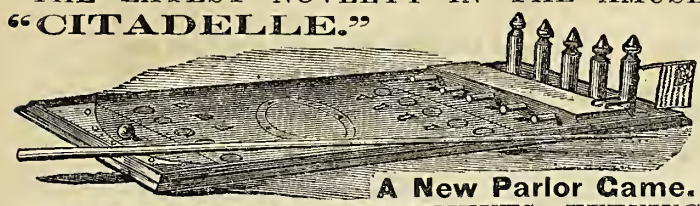
**THE MASSACHUSETTS SOCIETY, FOR PROMOTING AGRICULTURE,** offer for sale choice young pigs of the following strains:

**LARGE YORKSHIRE. BERKSHIRE, MIDDLE YORKSHIRE, ESSEX, SMALL YORKSHIRE.**

The Sires and Dams of the pigs now offered were personally selected in England from the best strains of prize winners, and will be sold very low for the quality. Address

E. F. BOWDITCH, Framingham, Mass.

**CITADELLE—The NEW GAME CITADELLE.**
IT AMUSES THE YOUNG AND INTERESTS THE OLD!
THE LATEST NOVELTY IN THE AMUSEMENT WORLD.
"CITADELLE."



A New Parlor Game.

For **$1.00** we will send to any address this new and delightful Parlor Game, the receiver paying the expressage. On receipt of 25 cts. additional, charges will be pre-paid to any point on the line of the Am. Express Co.

**WARNER & CO.,**
**NORTHAMPTON, MASS.**
**DEALERS**
SEND FOR CIRCULAR.

**ENCOURAGE HOME AMUSEMENTS. EVENINGS MADE JOYOUS.**

TO KEEP IT SWEET **CIDER** or prevent *Secondary* FERMENTATION,
**USE**
**IMPROVED PRESERVING POWDER**
It does not impair the taste or flavor, is thoroughly reliable and *absolutely harmless to the human system.*
SEND 30c. for a sample sufficient for 40 gallons.
**W. ZINSSER & CO.,** 197 William St., New York.

The Bryden Concaved Steel Calk Horse Shoe. The most complete shoe made, with welded steel toe calk, and iron heel calks, hammered, not rolled, and equal in wear to hand-made work. This Shoe is easily fitted, hot or cold, has a perfectly level foot bearing, is light and durable, with a low crease to protect the nails from working loose. The cheapest and best Shoe for Horse Railroads, Carriage and Farm Horses, now made. Made in sizes 1 to 5, hind and forward. Send for circulars. THE BRYDEN HORSE SHOE CO., 52 Broadway, N. Y.

# SLEIGH KNEES.

**Cady's Patent Iron Sleigh Knees** enables every farmer to build his own Sleds and Bobs at much less cost, and in a better and more durable manner, than with wooden knees. Ten years in use and no breakage. Send for Illustrated Price List.

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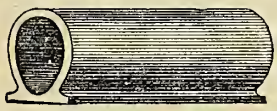
# POROUS DRAIN TILE.

2 to 7 in. VENT.



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## Scribner's Lumber & Log-Book.

OVER HALF A MILLION SOLD. Most complete book of its kind ever published. Gives measurement of all kinds of lumber, logs, and plank, by Doyles' Rule, cubical contents of square and round timber, stave and heading bolt tables, wages, rent, board, capacity of cisterns, cord-wood tables, interest, etc. Standard Book throughout United States and Canada.

Ask your bookseller for it, or one sent by me for 35 cents, post-paid. **G. W. FISHER,**
**P. O. Box 238, Rochester, N. Y.**

**A GREAT OFFER!!!** 100 PIANOS AND ORGANS at EXTRAORDINARY LOW prices for cash. SPLENDID ORGANS $31, $42; 5 Stops $47, 7 do $53, 9 do $62, 11 do $67, 12 do $76, 13 do $87. 7 Octave SQUARE AND UPRIGHT PIANOS $125 do $131, 7 1-3 do $140 and $153, not used SIX Months. Warranted 5 years. AGENTS WANTED. Illustrated Catalogues Mailed. HORACE WATERS, Agent, Manufacturer and Dealer, 40 East 14th St., New York. P. O. Box, 3530.

Highest Award AND **ONLY MEDAL** FOR French Dressing AND **Satin Polish.**
B. F. BROWN & CO.
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**FOR SALE CHEAP,** a Boomer & Boschert Cider Press (10 bbl.), Grater, etc. Also a first-class two-horse power machine. All nearly new and but little used.
O. R. CHASE, 698 Washington Street, Boston.

**THOROUGHLY COMPETENT MAN Wanted** to work on shares a grain and dairy farm, 564 acres, in South Western Mass., or for sale. For further particulars, address J. L. OBERLY, 132 Church St., New York.

## 5 TON FOR $50.

Five Ton Wagon Scales, all Iron and Steel, Brass Beam; freight paid; sold on trial. Address
JONES OF BINGHAMTON, Binghamton, N. Y.

[TRADE MARK.]

## Veterinary Cosmoline

Is a heavy oleaginous hydro carbon of the consistency of an ointment, derived exclusively from petroleum. It is absolutely free from acids, alkalies, or moisture. When applied to wounded and inflamed flesh, it is a perfect protection against atmospheric action, flies, insects, animalculæ, preventing the generation of microscopic organisms, and allowing nature absolute freedom to heal itself rapidly by a healthy granulation without scars. Never has there been a veterinary ointment that would heal so rapidly all the wounds, sores, and surface diseases of horses, cows, sheep, poultry, etc. For sale by Druggists. **Price 75c. in lb. cans.** Descriptive circulars mailed in answer to postal cards. E. F. HOUGHTON & CO.,
211 South Front Street, Philadelphia, Pa.

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# AMERICAN SUBMERGED PUMP

IS A DOUBLE-ACTING, NON-FREEZING
**FORCE-PUMP.**
Will draw water from 1 to 100 feet, with one-man power, and also force water to any required distance.
Prices, complete,
**$15 to $75.**

**RUBBER HOSE,**
**For Garden Purposes, at manufacturer's prices.**

**Wakefield, Perfection, and Peerless**
## EARTH CLOSETS
**Are the Best. Prices, $6.50 to $40.**
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**HENRY H. B. BLOOMFIELD,**
**34 DEY STREET, N. Y.**

**RIDGE'S FOOD for INFANTS AND INVALIDS**
When you ask for Ridge's Food, see that you get it; the name is embossed on the lid and the label has the signature of WOOLRICH & CO. Take no other.

**$14 SHOT GUN!** The Best Double-Barreled Shot-Gun in the world for the money. Warranted genuine twist, with *flask, Belt Box Wads, Box Caps and Wad Punch.* Also our celebrated Kentucky Rifle for *$12, warranted or no sale.* Send for Illustrated Catalogue and Price Lists to **James Bown & Son,** Enterprise Gun Works, *136 & 138 Wood St., Pittsburgh, Pa.*
ESTABLISHED, 1848.

**E. & O. WARD,** PRODUCE COMMISSION MERCHANTS.
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Send for Circular of Great Value, giving full instructions for shipping
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Ref., *Irving National Bank*, New York City.

*containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.*

Continued from Page 375.

**In justice to the majority of our subscribers, who have been readers for many years, articles and illustrations are seldom repeated, as those who desire information on a particular subject can cheaply obtain one or more of the back numbers containing what is wanted.**

**Back numbers of the "American Agriculturist," containing articles referred to in the "Basket" or elsewhere, can always be supplied and sent post-paid for 15 cts. each, or $1.50 per volume.**

**Bound Copies** of volume 37, and of every previous volume back to Vol. XVI. (1857), neatly bound, with gilt backs, Index, etc., are supplied at $2 each (or $2.30 if to be sent by mail). See Publishers' Notes, 2d cover page.

**Clubs** can at any time be increased by remitting for each addition, the price paid by the original members; or a small club may be made a larger one at reduced rates, thus: One having sent 6 subscribers and $7, may afterwards send 4 names more and $3, making 10 subscribers for $10.00; and so for the various other club rates.

**Terms to New South Wales, New Zealand, Australia, Africa, etc.**—To several inquirers. Under the latest revision of the Postal Union Regulations the price of the *American Agriculturist*, (either English or German edition), including postage *prepaid* through, will be covered by 7 shillings sterling per annum. This applies to the above countries, and to all others embraced in the General Postal Union. The simplest mode of remittance is by Postal Money Orders, payable in London, to the order of Orange Judd Company. These can be readily cashed in N. Y. City at a slight discount, which the publishers will cheerfully pay. For Club rates, (postage included), see our second cover page, and reckon 22 cents to the shilling sterling.

**Breaking Flax and Hemp.**—One great obstacle to the general cultivation of fibre-yielding plants has been the lack of a machine which would allow the grower to separate his own fibre and prepare it for market. From what we hear of the machine made by the American Vegetable Machine Fibre Co., we have reason to think that its production is as a long step towards this important end.

**Wanamaker and the Mails.**—Every one who has been in Philadelphia knows of Wanamaker, and nearly every one who has not been there has heard of his immense warehouses filled with every variety of dress goods for men, women, and children, furnishing goods of all kinds, travellers' outfits and the like. He has now a regularly organized Mail Department by which those who cannot go to Wanamaker can have him—or rather his goods—come to them.

**Bisulphide of Carbon.**—This is a remarkable liquid, found by the union of two solids, Sulphur and Carbon. At our first acquaintance with it, the price, as a chemical, was two or three dollars an *ounce*. Its wide use in the arts has caused it to be produced cheaply, and now it sells, wholesale, for about 30 cents per *pound*. It has a use in agriculture, being employed in France to kill rabbits, and it is proposed to use it in California for the destruction of squirrels. Pieces of brick or similarly porous substance are dipped in the liquid and placed in the holes, which are closed by earth. It evaporates rapidly, and its vapor is destructive to animal life.

**Horsford's Bread Preparation.**—When a new article at once steps into popularity it rarely happens that it retains its position for a long term of years. When it does this, it is conclusive proof that the article itself has intrinsic merits. The Bread Preparation of Prof. Horsford presents an instance of sustained and increasing popularity from the first, and this, in this instance, is plainly due to the fact that it is an article that met a general want. Everybody must have bread, but every one cannot have good yeast, and many, for a change at least, prefer bread made in some other way. The certainty with which bread is made light by the Horsford Preparation is a strong point in its favor, but a greater one is that its use introduces nothing into the system that does not belong there, and so far as it has any effect, it increases the nutritive value of the bread.

**Threshing Day**—Or threshing week, not many years ago, was looked forward to with a sort of mingled anxiety and dread. Everything from the house to the melon patch and peach orchard was taken by storm by the "threshers," and all was hurry, flurry, and waste. We are glad that the vast improvements in the machines has been followed by more system and civility on the part of those who *separate* the wheat from the chaff, and threshing day is quiet, or more quiet in senses greater than one, than it used to be.

**Chestnuts.**—As the time arrives for the gathering of this esteemed nut, it is well to remember that it could be greatly improved by careful selection and culture. On the Island of Corsica, on the south of France, the chestnut forms one of the principal articles of food, and the yearly production is over 14,000,000 pounds. The nuts are much larger than our wild ones, single in the bur, and large and round. By long cultivation, they have produced several distinct varieties. Individual wild trees are known here with nuts nearly equal to the European chestnuts in size, and vastly better in quality.

**What is a Weed?**—Professor Asa Gray has a valuable paper in the "American Journal of Science and Arts," for September, upon: "The Pertinacity and Predominance of Weeds," and at the outset he considers briefly some of the various definitions of a weed. We give a few: "Any useless or troublesome plant," "Every plant which grows in a field other than that of which the seed has been intentionally sown by the husbandman," "Any plant which obtrusively occupies cultivated or dressed ground to the exclusion or injury of some particular crop intended to be grown. Thus even the most useful plants may become weeds if they appear out of their proper place. The term is sometimes applied to any insignificant-looking or unprofitable plants which grow profusely in a state of nature; also to any noxious or useless plants." Years ago, we were taught to view a weed in the light of this short definition: "A weed is a plant out of place," and it seems to cover the matter.

**Agricultural Investigation.**—Mr. Albert Pell and Mr. Clare Sewell Read, members of the British Parliament, are commissioned to inquire as to the cost of production and sources of American live stock and meat exports. They will spend some time with us. England is awake to the position of her depressed agriculture.

**To Clear an Obstructed Pipe.**—"Mrs. P.," Armstrong Co., Pa. When a leaden pipe becomes obstructed by sediment, it may be cleared by inserting a roll of fence wire that has been straightened out, unless the length be too great. For 200 or 300 feet, this method would be practicable. Unroll the wire, and straighten the kinks or bends with a hammer, on a piece of plank. Then carefully push the wire *down*, not up the pipe, pouring in some water. When the wire meets the obstruction, work it up and down gently; this will mix the sediment with the water, and make mud of it. So proceed until through the obstruction; then pour in water freely, and work the mud to the outlet. In laying pipe, bends and hollows should be avoided, as sediment will surely collect in them and sometimes cause trouble.

**A Heavy Fleece of Wool.**—A sheep-owner in Kansas reports shearing a fleece from a Merino ram which weighed 40 lbs. The fibre was 4½ inches in length, and the estimated washed weight of the fleece was 27 pounds. Judging from the usual loss of weight in heavy Merino ram fleeces, we should suppose this estimate too high by one-half. We should rather hear of its actual than its estimated weight.

**Diversified Crops—Questions to Minnesota Farmers and Others "Out West."**—Mr. F. T. DREBERT, Editor of the "Owatonna (Minn.) Journal," with whom we spent a pleasant hour in his office, recently, puts several practical questions to his farmer readers, which may apply to other regions. Among the dozen queries are these: "Because wheat has been the great staple of the State, is it *now* the most profitable crop in South Central Minnesota? Taking the uncertainty of the wheat crop, is not corn more profitable on the average? Will not live stock and root crops pay better than wheat? Is it right to increase one's burdens of mortgages to add acre after acre to his wheat farm? Can there ever be an entire failure of crops in *diversified* farming? Will not 160 acres, well tilled, growing a *variety* of crops, yield on the average a better and surer return than a wheat farm of 320 acres? Is not such diversified farming, enabling one to employ reliable help all through the year, better than to submit to the exactions of worthless tramps at wheat harvest? Have not the farms in Steele County (and in many other farming wheat sections) become too valuable to compete with the cheap wheat lands of the newly settled West?"—Eastern people are apt to think Central Minnesota pretty well "out West." A good ways beyond Owatonna, we heard people talking about going "out West" to settle, and saw others "moving" in that direction. At Sioux City, we talked with some farmers on a Missouri River steamboat who had implements, etc., on board for their western farms, to reach which, as the Captain informed us, the steamer required about *six weeks time!*

**Sawdust Litter.**—"S. B.," Camden, S. C. Pine sawdust makes excellent litter and a good absorbent for manure, but it is of no value as a fertilizer. Nevertheless it will do no harm, excepting upon light soil, which it makes too dry and open. Upon low or heavy clay soils it is useful to loosen their texture and make them dry. Hard-wood sawdust decays more easily than pine, and is free from the above objection...."G. F. A.," Talladega, Ala. If pine sawdust is burned slowly in heaps until reduced to ashes, the ashes will be useful. Tan bark is equally inert as sawdust, but the ashes are more abundant, richer, and consequently more useful.

**Treatment of a Worn Out Meadow.**—"S." writes: "Last fall a few acres of poor moss-grown meadow was well worked over with a disk harrow and thoroughly cut up. What good sod existed was cut into fragments and spread loosely over the surface. A sufficient quantity of Timothy and Clover seed was sown over the ground, and several loads of fine scrapings of the barnyard were spread. The surface was then rolled both ways. This year the meadow has given two cuttings of hay, and might be cut again if desired."—When it is not convenient to plow the ground, as is sometimes the case, this method of restoring poor grass land has the advantage of being quick in operation and effective.

**Draining a Swamp.**—"H. E. J. N.," Auburn, Me. A piece of swamp underlaid with hard-pan can be drained very easily. The drains should be cut down to the solid bottom and the tiles laid upon that; if quicksand is met with in places, the tiles may be laid upon and covered with tan bark. The distance from drain to drain will depend upon the quantity of water; if the water is plentiful 40 feet between the drains will be about right; if the ground is not *wet*, 60 feet will do.

**Seeding for a Meadow.**—"E. S. M.," Albemarle Co., Va. Timothy alone will not make a good meadow. Upon rich ground and mixed with Red Clover it furnishes good hay, but for a pasture it is inferior to a mixture of grasses, and Timothy does not succeed well with other grasses. The best mixture for a pasture is Orchard-Grass and Kentucky Blue-Grass, one bushel each, Red Top and Creeping Bent half a bushel each. These grasses come into full growth at different times, and furnish successive and constant pasture. For both hay and pasture, Orchard-Grass and Kentucky Blue-Grass one bushel each, and Red Clover 6 lbs., would make a good mixture. The best preparation for seeding is, to plow shallow, turning a flat furrow, to roll, and then harrow; after this, seed with wheat or rye in the fall, or alone without any grain crop, if in the spring.

**Plowing Up Grass Lands.**—There is no doubt that many good meadows are spoiled by plowing up. Land that is naturally moist, that is level and bears a fair crop of grass, but which has been permitted to become thin for want of manuring, can be restored better by other methods than by plowing, which is, of course, total destruction for the time. Such land is filled with grass roots which need only food to throw up abundant grass. A liberal top-dressing of fine manure, spread with the harrow, and a light dressing (100 lbs. per acre) of Nitrate of Soda, will cause a new growth of herbage, thick at the bottom and fine at the top, to produce which would require several years if the land were plowed. A close, thick sod is only produced by many years growth.

**Ringbone.**—"W. B. H." An old standing ringbone is incurable because the bony deposit has become hard and permanent. In its early stage, when beginning to form, blistering may both cure the disease and cause the deposit, which is soft and immature, to disappear.

**A New Peach—The "Parnell."**—We received from Mr. John H. Parnell, West Point, Ga., specimens of a peach which is remarkable for both size and quality. According to Mr. Parnell, this is a seedling of the Large White Cling, and differs chiefly from its parent in being much earlier. The specimens received by us, averaged 10½ inches in circumference, were white, with a little red on the sunny side, and of a fineness of flesh and richness of flavor rarely equalled. This is a variety which peach-growers will do well to look after.

**A Horse with Bad Feet.**—"E. E.," Mason Co., W. T. A horse that has small, thin feet needs to be shod with the greatest care, or it may easily be ruined. The frog should not be cut away, or the heels pared and let down, nor should the crust be burned or rasped away. Everything should be done to encourage the growth of horn so as to lift the sole from the ground. The shoe should be thinned to the inner edge and thickened on the other edge, and *should* be fitted *to the foot* with the greatest care, and not the foot fitted to the shoe. The growth of horn will increase by keeping the foot moist; a mixture of one part of Glycerine and three parts of Water will be found useful for this purpose. The hoof should never be rasped. A bar shoe may be found useful for a time, until lameness disappears.

**Mixed Foods.**—A mixture of feeding substances is always conducive to the health of animals. It operates as a change of food, and it is more convenient to mix several substances and use them together than to feed them separately. For horses, the basis of the grain feed should be oats or barley. It might be remarked here, that barley is too much neglected as a feeding substance; it is nutritious and healthful even as a single food, while mixed with corn, it reduces the heating character of the latter. Equal parts of oats, barley, corn, wheat or rye bran, and linseed, ground together, form a perfect food for horses, containing no element of nutrition in excess, and having the laxative effect of the oily linseed to keep the digestive organs in perfect order, the skin loose, and the coat smooth and glossy. For cows, the linseed may be changed for cotton-seed meal, which has an excellent influence upon the milk and the character of the butter.

**Cracked Heels.**—Exposure to wet and mud, scarcely avoidable in autumn, will almost certainly produce cracked heels in horses, unless precautions are used. When the cracks are once formed, they are difficult to heal, because at every motion of the foot, they are opened, and the granulations are disturbed. Prevention consists in frequent cleansing of the feet by washing with clear water, and *wiping dry* at once with a cloth or towel kept for the purpose. The drying of water upon the skin is injurious, and should be carefully avoided. A little of the Veterinary Cosmoline, or even crude petroleum, which is the basis of the Cosmoline, applied in the morning, before the horses are taken out, will prevent mischief, and the same remedy, with regular cleansing with soap and water, will cure cracks very rapidly. If the cracks are severe, from neglect or otherwise, the pastern should be protected by wrapping a bandage around it.

**An Inquiry that Cannot be Answered.** "Strawberry," Pa. Your query is of a kind that should be answered by private note, which we should be glad to do; but having thought proper to give only a fictitious name—for what purpose it is impossible to imagine—we cannot reach you by mail. When will some people learn to write to the editor of a journal as they would to any other person?

**Use of Turnip and Beet Leaves.**—If fed in moderation, and when free from surface water or frost, the leaves of turnips and beets may be safely and usefully fed to cows, cattle, or sheep. They are too frequently left on the field and wasted, when they might be saved by putting them in heaps, and covering them with straw and some earth, or even keeping them in heaps on the barn floor. A heaped bushel basket for a cow twice a day will not be too much if the leaves are in good condition; otherwise do not feed them at all. We have used leaves of mangels cut up with hay in a fodder cutter, and sprinkled with a quart or two of cotton-seed meal, with benefit, and we are fully convinced it has no ill effects upon the flavor of the milk.

**Felted Wool.**—When sheep are out of condition, through insufficient feeding, or ill-health, the yolk is not secreted in sufficient quantity to lubricate the wool. In this dry hard condition of the wool, it is easily matted or *felted* together, upon exposure to rain. This condition of the wool, sometimes called "cotting," seriously injures the fleece and reduces its value. When it has occurred, the mischief is done, and there is no remedy. It is therefore wise to prevent it by attention to the feeding and condition of the sheep. If the sheep are already in poor condition, protection from rains will prevent the damage to the fleece, and good feeding will soon restore the yolk. Oil-cake meal is an excellent restorative feed for sheep in such cases. A little yellow ochre rubbed in the fleece will help to prevent the matting of the wool.

**Cleansing the Feet.**—Horses that are kept standing upon foul litter, are apt to have the feet injured by the acrid effects of the manure. The horn of the sole is dried and shrunken, the frog is hardened, or its tissue is partly destroyed, and the most important portion of the foot is seriously injured. The shrinking of the frog induces contraction of the walls of the hoof and the pressure upon the sensitive laminæ under it, soon causes inflammation, or, at least, hardness, which shows itself by lameness, and is rendered worse by neglect. This trouble may be avoided by keeping the stable floor clean, and by occasional washing of the feet. There is no more effective prevention of trouble with the feet, than cleanliness.

## October Fair List.

### STATE FAIRS.

| | | | |
|---|---|---|---|
| Arkansas | Little Rock | Oct. | 20 |
| Connecticut | Hartford | Oct. | 14-17 |
| Georgia | Macon | Oct. 27—Nov. | 1 |
| Illinois | Springfield | Sept. 29-Oct. | 4 |
| Indiana | Indianapolis | Sept. 29-Oct. | 4 |
| Montana | Helena | Sept. 29-Oct. | 4 |
| North Carolina | Raleigh | Oct. | 13-18 |
| Nevada | Reno | Oct. | 7-12 |
| South Carolina | Columbia | Nov. | 11-14 |
| Tennessee | Nashville | Sept. 30-Oct. | 4 |
| Virginia | Richmond | Oct. | 28 31 |

### Industrial and District Fairs.

| | | | |
|---|---|---|---|
| Am. Institute | New York | Sept. 17-Nov. | 22 |
| Am. Bee-keepers | Chicago | Oct. | 21-23 |
| Cincinnati Ind. Ex | Cincinnati | Sept. 10-Oct. | 11 |
| Illinois Fat Stock | Chicago | Nov. | 10-15 |
| Inter State | Chicago | Sept. 3-Oct. | 18 |
| Nova Scotia, Prov'l | Halifax | Sept. 29-Oct. | 3 |
| St. Louis Ind. Ex | St. Louis, Mo | Sept. 22-Oct. | 5 |
| Georgia North | Atlanta | Oct. | 20 26 |
| Indiana, N. East'n | Waterloo | Oct. | 6-10 |
| Kansas Central | Junction C'y | Sept. 30-Oct. | 3 |
| Kentucky South'n | Glasgow | Oct. | 7-10 |
| Michigan, Central | Lansing | Sept. 29-Oct. | 3 |

### County Fairs.

MAINE.

| | | | |
|---|---|---|---|
| Androscoggin | Lewiston | Oct. | 7- 9 |
| Oxford, West | Fryeburg | Oct. | 14-16 |
| Piscataquis Cent'l | Foxcroft | Oct. | 1- 2 |
| Sagadahoc | Topsham | Oct. | 14-16 |
| Somerset, West'n | North Anson | Oct. | 1- 2 |

NEW HAMPSHIRE.

| | | | |
|---|---|---|---|
| Upper Coos | Colebrook | Oct. | 1- 2 |

CONNECTICUT.

| | | | |
|---|---|---|---|
| Danbury | Danbury | Oct. | 8-11 |
| Guilford | Guilford | Oct. | 8 |
| New Haven | New Haven | Oct. | 1- 3 |
| Tolland, East | Stafford Springs | Oct. | 1- 2 |
| Torrington | Wolcottville | Oct. | 14-15 |

NEW YORK.

| | | | |
|---|---|---|---|
| Brockport Union | Brockport | Oct. | 3- 4 |
| Delaware Dairy'n | Delhi | Nov. | 12-13 |
| Livingston | Geneseo | Oct. | 1- 2 |
| Steuben | Bath | Oct. | 1- 3 |
| Sullivan | Monticello | Oct. | 1- 2 |

NEW JERSEY.

| | | | |
|---|---|---|---|
| Burlington | Mt. Holly | Oct. | 7-10 |
| Cape May | So. Seaville | Oct. | 1- 2 |

PENNSYLVANIA.

| | | | |
|---|---|---|---|
| Bradford | East Towanda | Oct. | 1- 3 |
| Chester | West Chester | Oct. | 3- 4 |
| Columbia | Bloomsburg | Oct. | 15 17 |
| Crawford | Conneautville | Oct. | 1- 3 |
| Franklin | Chambersburg | Oct. | 7-10 |
| Green | Carmichaels | Oct. | 2- 3 |
| Northampton | Nazareth | Oct. | 7-10 |
| Washington | Washington | Oct. | 1- 4 |
| York | York | Oct. | 7-10 |

OHIO.

| | | | |
|---|---|---|---|
| Auglaize | Wapakoneta | Oct. | 7-10 |
| Butler | Hamilton | Oct. | 6-10 |
| Carroll | Carrollton | Oct. | 7- 9 |
| Clyde | Clyde | Oct. | 7-10 |
| Fairfield | Lancaster | Oct. | 15-18 |
| Guern. Co. F. & M | Washington | Oct. | 1- 3 |
| Hancock | Findlay | Oct. | 2- 4 |
| Hardin | Kenton | Oct. | 1- 4 |
| Hocking | Logan | Oct. | 9-11 |
| Knox | Mt. Vernon | Oct. | 7-10 |
| Mahoning | Canfield | Oct. | 7- 9 |
| Portage | Ravenna | Oct. | 7- 9 |
| Putnam | Ottawa | Oct. | 8-11 |
| VanWert | VanWert | Oct. | 2- 4 |
| Williams | Bryan | Oct. | 7-10 |
| Wyandot | Up. Sandusky | Oct. | 7-10 |

INDIANA.

| | | | |
|---|---|---|---|
| Daviess | Washington | Oct. | 7-11 |
| Greene | Linton | Oct. | 7-11 |
| Knox | Vincennes | Oct. | 13-18 |
| Marshall | Plymouth | Oct. | 2- 4 |
| Noble | Ligonier | Oct. | 8-11 |
| Northeastern Ind | Waterloo | Oct. | 6-10 |
| Warrick | Booneville | Oct. | 7-11 |
| Wells | Bluffton | Oct. | 6- 9 |

ILLINOIS.

| | | | |
|---|---|---|---|
| Clark | Marshall | Oct. | 1- 3 |
| Gallatin | Shawneetown | Oct. | 7- |
| Greene | Carrollton | Oct. | 21-24 |
| Jersey | Jerseyville | Oct. | 14-17 |
| Lawrence | Lawrenceville | Oct. | 8-11 |
| Massac | Metropolis | Oct. | 8-11 |
| Perry | Pickneyville | Oct. | 1- 3 |
| Pope | Goleonda | Oct. | 2- 4 |
| Randolph | Chester | Oct. | 21-24 |

MICHIGAN.

| | | | |
|---|---|---|---|
| Armada | Armada | Oct. | 1- 3 |
| Cass | Cassopolis | Oct. | 2- 4 |
| Clinton | St. Johns | Oct. | 7-10 |
| Clinton & Shia | Ovid | Oct. | 14-16 |
| Ionia | Ionia | Oct. | 7-10 |
| Midland | Midland City | Oct | 8-10 |
| Sanilac | Lexington | Oct. | 1- 2 |
| Tuscola | Vassar | Oct. | 1- 3 |

WISCONSIN.

| | | | |
|---|---|---|---|
| Barahoo | Baraboo | Oct. | 1- 4 |
| Racine | Burlington | Oct. | 1- |
| Waukesha | Waukesha | Oct. | 7- 9 |

IOWA.

| | | | |
|---|---|---|---|
| Henry | Mt. Pleasant | Oct. | 1- 6 |

KANSAS

| | | | |
|---|---|---|---|
| Burlingame | Burlingame | Oct. | 1- 3 |
| Cowley | Winfield | Oct. | 8-11 |
| Dickinson | Abilene | Oct. | 8-11 |
| Ellsworth | Ellsworth | Oct. | 2- 4 |
| Franklin | Ottawa | Oct. | 1- 4 |
| Harvey | Newton | Oct. | 1- 3 |
| Linn A. & M | Mound City | Oct. | 1- 4 |
| Marion | Peabody | Oct. | 1- 3 |
| Morris | Parkerville | Oct. | 1- 3 |
| Spring River | Baxter Springs | Oct. | 1- 3 |

KENTUCKY.

| | | | |
|---|---|---|---|
| Christian | Hopkinsville | Oct. | 8-12 |

MISSOURI.

| | | | |
|---|---|---|---|
| Barton | Lamar | Oct. | 7-10 |
| Cape Girardeau | Cape Girardeau | Oct. | 14-18 |
| Harrison | Bethany | Oct. | 7- 9 |
| Jefferson | Jefferson City | Oct. | 1- 3 |
| St. Louis | St. Louis | Oct. | 5 9 |

MARYLAND.

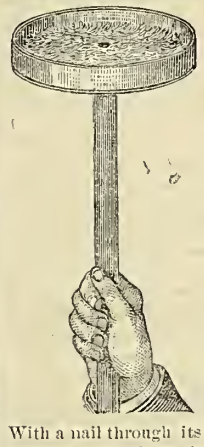
| | | | |
|---|---|---|---|
| Alleghany | Cumberland | Oct. | 7-10 |
| Harford | Bel Air | Oct. | 7-11 |

PRINCE EDWARDS ISLAND.

| | | | |
|---|---|---|---|
| Queens | Charlottetown | Oct. | 7- 8 |

## Kerosene and Mosquitoes—At Last.

We have got them, sure, this time! Those pesky marauders that swarm in during the chilly nights of September and October, to warm their toes in your bed-room if you leave the smallest opening for fresh air—that disturb your dreams with their high-keyed monotone of piteous pleading—that perch down upon your nose, forehead, face, bald head, hands, feet, or any other surface exposed, or even thrust their long spears and suction-hose through anything less than half-inch thick coverlids, and draw out your life blood, leaving behind their poisonous venom that shows itself in swellings like a field of mole-hills, the next morning. You have tried window and door-nettings, but the pests always find a crack or a defect somewhere. You have hung over the bed a canopy that made you feel like "lying in State," awaiting the undertaker, unless, perchance, an unlucky match, or lamp, or gas-jet has instantly turned said canopy into smoke. You have vainly smeared your face and neck and hands with suffocating mint extracts. You have covered your hands with thick gloves, your feet with the heaviest winter stockings, and hid your face with bandages until you resembled an Egyptian mummy, stopping the ears with cotton to shut out the disturbing hum, and gone to sleep, with the hope that the painful mole-hills, aforesaid, would only appear around the edges of the nostrils necessarily left exposed, and even then found on the morrow that several thinner spots in your armor had been penetrated. Is there any greater annoyance during these October nights, than these most diminutive insects, so small that "a great many of them weigh a pound?"... Well, we "stop the press" to announce that we have a weapon that will be new to many, that will be a great help, even if in its modifications it does not result in a "sure cure;" an apparatus made in two minutes, with the materials everywhere available; a thing unpatented, free to all, and so simple that anybody can fabricate and use it. It costs nothing, and if your experience is like that of the writer, you will value it ten-fold the cost of a year's subscription to the *American Agriculturist*. To wit: Take a tin box cover, half an inch or more in depth, and anywhere from 4 to 10 inches in diameter—a large blacking-box cover will do, or the top of a spice or other box, or the bottom of a fruit-can cut off, retaining ¾ inch of the sides on it.



With a nail through its center, fasten one of the above, opening upward, on the end of a broom-handle, or any other stick of convenient length (see engraving). Put into it a thin layer of wadding or Canton-flannel, patting it down so that no point will project above the edges of the box. Moisten this with a little kerosene; have the box-edge wiped clean, so as not to soil the wall, and you are ready for effective war. No matches or fire to be used. Select your enemy on the ceiling or wall. Raise your weapon steadily under him, 6 inches, 4 inches, 3 inches, 2 inches, 1 inch. If he don't, in ten seconds, voluntarily take a final rest on your cotton bed, push the edges up against the ceiling, take it down, and your enemy will be there stark and stiff. We cleared a room of 21 mosquitoes in five minutes, and it was not a good night for mosquitoes, either. The odor even of the kerosene seems to be fatal—at least, we have had the mosquitoes fall dead when the box was held nearly a foot below them a single minute. We have had no time for further experiments, but what possibilities are there not here in prospect! Perhaps smearing the netting on the windows or the blinds with a little kerosene, may secure safety. Perhaps, the public authorities of any "infected district" may judiciously distribute a few barrels of cheap kerosene over the breeding waters of the mosquito, and thus free a whole town or county. (Our recent experience leads us to commend this to the U. S. Official near Lake Kampeska, Dakota, and to some *other* localities we have recently visited). These are only hints for the inventive experimenters. We are just now satisfied with our box-cover on a stick.

**The Century Plant.**—The blooming of a fine Agave, or Century Plant, in Brooklyn, N. Y., has brought up anew the question: "Is it really a fact that this plant flowers only once in a hundred years?" To answer this query, which has been done many times before, we will say that this plant (*Agave Americana*), in its native tropical and sub-tropical climate, comes to maturity in twenty years or less, that is, it produces its flowers, after which it dies. This plant, like many others, spends a considerable time in gathering nourishment and strength for its one grand effort of bearing flowers and fruit (seed). This food is stored up in the leaves, the bases of which are very much thickened with the nutriment. When the supply is sufficient, the flower-stem is produced, sometimes growing very rapidly, and running up for 15 or 20 feet, bearing a multitude of flowers, and ripening hundreds of seed-pods, all at the expense of the food in the leaves; after this, the plant being exhausted, it dies. The name comes from the fact that in greenhouses it flowers only after it has lived for a considerable number of years—the time depending much upon surrounding conditions, as heat, moisture, and supply of food.

**Bird Laws.**—The new laws of New York, contain several with reference to birds. The robbing of wild bird's nests, except of crows, blackbirds, hawks, and owls, is prohibited; and no one is to kill, catch, or sell any wild song-birds between the end of March and the beginning of November, except in the cause of science. Fruit-growers are allowed the privilege of killing birds on their own premises when destroying their fruit.

**Figs in Michigan.**—Thomas Archer & Co., at St. Joseph, Mich., are obtaining success in the growing of figs. The crop from some trees is stated at two bushels; and the fruit is well ripened. The account, in a Michigan paper, does not state the fact, but we presume that the trees are laid down for the winter, after the method proposed by Col. Worthington, of Ohio.

**Australian Agriculture.**—The government agricultural statistics gives some interesting figures of the crops in Australia. The area in wheat, for 1879, was 658,413 acres, an increase of 93,846 acres over last year. The average is only 8.7 bushels per acre, against 12.4 for last year, showing a large decrease in the amount of wheat raised, though the acreage is much increased. Australia will have little or no wheat to export this year.

**Watching the Markets.**—After all the trouble, expense, and care of raising a crop, it is unwise not to keep a keen eye on the markets, and thus be able to dispose of the surplus products to the best advantage. Some crops will keep, while others must be marketed at once. It does not pay to hold a crop, unless a rise is almost certain. Look well to the chances, by a study of crop returns and foreign demands, and sell intelligently.

**Home Made Fertilizers.**—"G. G. D.," Lexington, Va. It is possible to procure the materials for almost any fertilizer and mix them. So far as Phosphoric Acid goes, the South Carolina Rock Phosphate is as effective as Boue Phosphate, and is cheaper. Nitrogen may be procured in Nitrate of Soda, or Fish-Scrap, the Muriate is the cheapest form of Potash; Soda is not needed, and Sulphate of Lime may be added in the shape of Plaster. A mixture of Rock Phosphate, 1,000 lbs., Muriate of Potash and Fish-Scrap, 400 lbs. each, and Plaster 200 lbs., will make a very useful fertilizer, from which, applied at the rate of 400 lbs. to the acre, good results may be expected, otherwise something else is wrong.

**Food for a Lifetime.**—It has been estimated that a man who lives to the age of 70 years will eat not far from the following amount of food or its equivalent Cheese, 600 pounds, Fat, 1,620 pounds, Flour, 183 barrels; Meat, 2,100 pounds, Milk, 997 gallons; Potatoes, 254 bushels, Sugar, 7.8 barrels; Tea, 120 lbs.

**Deep or Shallow Plowing.**—"P. L. A.," Buford, Ill. Six inches is not deep plowing; from 3 to 6 is shallow plowing, and over that is deep. As a rule shallow plowing is preferable. Few of the advocates of deep plowing ever plowed a furrow, or if they did, would repeat their experiment. A great deal of mischief has been done by the nonsense of deep plowing as a rule.

**Draining Tiles.**—Probably for the reason that their products are all taken up near home, Tile Manufacturers of late years have advertised but little. The numerous inquirers for tiles will find in the proper columns the announcement of Bell's Tile Factory, of which we hear excellent accounts, both as to the natural excellence of the clay and the care exercised in the manufacture.

**An Advisable Rotation.**—"F. H. M.," Ontario. The rotation suggested is faulty in having wheat come after grass. Wheat does not succeed well upon sod unless it is summer fallowed; and thrives better after peas or barley. Changed as follows, your rotation would be as good as any for your locality, viz. Wheat seeded to Timothy and Clover; grass, cut for hay, hay and clover seed, pasture, peas and roots, barley and wheat again. The manure should be given on the plowed barley stubble and on the roots. Fodder corn might be grown with the peas on the plowed sod. Wheat succeeds better after peas and corn than after any other crop. Barley with grass and clover seed might follow.

**What the Grocers Sell Us.**—A MANUAL FOR BUYERS, by P. H. Felker. The title hardly indicates the fact that this work, while it tells what the grocers sell us, also serves to show what they *should not* sell us, as one of its principal objects is to point out the natural impurities and intentional adulterations of the many articles in daily use. Few who have not given special study to the subject, are aware of the extent to which adulteration is carried on in spices, coffee, and a host of other things, and as a matter of economy, the purchasers should know how to choose between the good and the bad. Besides this, the work has an educational value; many very intelligent persons would be puzzled to tell where and what Tapioca, Sago, Chocolate, etc., came from; all such things should be taught to children, and this will serve as an excellent text-book in such matters. The book, while valuable to buyer, is no less so to sellers. Second Edition, Published by the Orange Judd Co., price, $1.00.

**The Grasses and Forage Plants of Alabama.**—By Charles Mohr, Mobile, Ala. This is a catalogue of the native and naturalized grasses of the State, giving their botanical and common names, the kind of soil in which they naturally grow, counties where collected, duration—whether annual or perennial—and a brief indication as to whether worthless, of little value, or valuable. All such catalogues are useful, especially in the Southern States where the climate is unfavorable for most cultivated grasses, and it is necessary to depend largely upon the indigenous and naturalized species for forage. The author, long known to us an industrious and accurate botanist, adds to the value of his catalogue by notes on some of the tropical and other grasses now cultivated to some extent, and, what is of the most importance, remarks upon the agricultural value of such native grasses as appear to be most worthy of the farmer's attention. The grass catalogue is accompanied by another, giving the trees and shrubs of that State, of equal though less general value. The pamphlet does not bear the name of any publisher, but we suppose that it may be had of the author.

**The Crescent Seedling Strawberry.**—Mr. H. H. Smith, of West Haven, Conn., complains that the article in Sept., page 346, is "doing great injustice to me in the cast given to the Crescent Seedling." Then he intimates that another nurseryman had something to do with the article, and winds up by saying, "I can ask no less than the discontinuance of my advertisement from this date." Certainly, Mr. Smith. This is a tolerably free country, and one can advertise where he thinks it will do him the most good; but if any one thinks that his advertising or not advertising, will change an *editorial* opinion, he labors under a mistake. It is a common error with those of limited experience, or who are engaged in the sale of a few varieties of fruit, to make a personal matter of all criticisms upon their fruits. In discussing the Crescent Seedling, we did not discuss Mr. Smith. Or, if he regards the injury as to his business, then every nurseryman in the country can complain, for the "Crescent" is offered from one end of the country to the other. Mr. Smith's implication that another dealer had something to do with the article, is simply without the remotest foundation in fact. Mr. Smith is very unreasonable. In August, 1878, we figured the "Crescent," and allowed Mr. E. P. Roe, to say just whatever he pleased about it. If the notice in September last, was an "injustice" to Mr. Smith, that in the previous August must have been, as he identifies himself with the "Crescent," *a justice to him*. Yet he never even thanked us. It is well for Mr. Smith and every other person with fruit hobbies to know that a fruit, when offered to the public, becomes then a legitimate subject for pomological criticism, just as a book when published is open to literary criticism. An editor has only to do with the fruit as it appears to him, and he gives his opinion of it for the benefit of the public; he does not stop to consider whether one nurseryman or all the nurserymen will sell more or less plants—if he did his opinion would be of no value. Mr. Smith thinks otherwise, and, because he has a different opinion of the fruit from ours, very inconsiderately prevents thousands from knowing where a fruit he regards so valuable can be had. The "Country Gentleman" not long ago had a notice not especially favorable to the "Crescent." Did Mr. Smith withdraw his advertisement from that also? If so, how will people learn of the "Crescent"? We will be more liberal than Mr. Smith and say that whoever wishes to buy the "Crescent," a wonderfully productive berry, of not high quality, quite too soft for a distant market, but no doubt profitable for a near market, can get the plants of Mr. H. H. Smith, West Haven, Conn.—and of almost any other dealer of small fruits in the country.

**Eaves-Troughs on Barns.**—It often happens that the "barn yard well" fails in summer, while at the same time there are frequent showers. If there were eaves-troughs on the barns, and the rain which falls upon the roof collected in a cistern, there would be an abundance of water for use. The annoyance of dripping eaves, wet and sloppy barn-yard, and waste of manure by washing, aside from the value of the water saved, show the utility of providing all barns with good eaves-troughs.

**Yield of Bread from Flour.**—At a late meeting of the Miller's Association, of Indiana, the Flour Testing Committee reported that a barrel of flour will make from 270 to 280 pounds of bread, or an increase of nearly a hundred pounds per barrel. The bakers were required to give light and wholesome bread in all cases.

**Veterinary Education.**—A movement is on foot to establish a Veterinary Department in the University of Pennsylvania. This science needs more attention.

**Corn on Prairie Sod.**—"A. W. M.," N. Y. Corn is planted on newly-turned prairie sod by turning the sod not over three inches thick, and dropping the corn in every third furrow. As few weeds grow the same season, no cultivation is required. After the corn is taken off, the surface may be well harrowed, and wheat or rye sown, but it is usual to plant corn several times in succession before sowing wheat. Potatoes may be planted on newly broken prairie soil with good results.

**Cinchona or Peruvian Bark.**—Experiments have been begun to test the practicability of growing the trees in California. Several thousands of seedlings have been raised by the Agricultural Department of the State University, to be distributed when large enough.

**Poisoning by Poison Ivy or Rhus.**—One more remedy is proposed. The Rag-weed or Roman Wormwood is bruised, the juice squeezed out, and applied to the affected surface. It is gratifying to know that this pestiferous weed can be used for something.

**The Travis Wheat Hoe.**—Last month, p 360, we stated that Mr. Travis did not manufacture the Wheat Hoe that he invented. This was done under the impression that Mr. T. had placed the manufacture in the hands of other parties, but we learn from good authority, Mr. Travis himself, that while engaged in farming, he also makes his Wheat Hoe at Brandon, Oakland Co., Mich.

**Loss at Kilburn.**—The "Agricultural Gazette" (London), states that the Royal Agricultural Society has sustained a loss from its late exhibition at Kilburn, of £10.000. This is no doubt due to the long continued bad weather. They have, nevertheless, added about a thousand names to their permanent list of membership.

**Preserving Cider.**—For many years the Sulphite of Lime has been more or less employed for arresting the fermentation of cider. This often imparts a slight taste, and, on this account, as well as from the fact that the cider dissolves more or less lime, its use is much less general than when first introduced. The Preserving Powder advertised in our columns is essentially vegetable in its origin, and may be used with safety.

**The N. Y. Horticultural Society.**—There is no reason why *all* the monthly meetings of this Society should not be—what several of them have been the past season—occasions of great interest to all who attend. Members and all interested in horticultural matters will usually find the exhibitions at these meetings of interest, and there are often instructive papers read by members and others. At the meeting for this month, to be held at 2 o'clock, P. M., on the 7th inst., William Saunders, Esq., of Washington, D. C., will present his views on Tea Culture in the United States. The proposition to cultivate Tea in this country has been made the subject of much ridicule by the daily papers, which have not taken the trouble to inform themselves upon the matter. If the editors will attend this meeting and learn what really is proposed, they may find less to ridicule than they at first supposed. The Society's rooms are at No. 355 West 33d st. Take elevated railroad.

**The Clover-Seed Crop.**—The amount of clover-seed annually harvested in the United States is not far from 700,000 bushels, about one-half of which is used at home, the remainder goes to Europe, mostly to England. Some clover-seed is grown in nearly every State of the Union, but the first six are the following: Pennsylvania, Ohio, New York, Indiana, Michigan, and Maryland.

**"Icee Wagon Come Nextee."**—"A little nonsense, now and then, Is relished by the wisest men," especially when they are weary with hard work of body or mind. Friend Burdette, of the "Burlington Hawkeye," is doing a good deal to rest tired people in this way, and the "Detroit Free Press," is working in the same line, as witness the following: A correspondent says that a young reporter of the "Boston Telephone," caught in a heavy shower, stepped into a doorway where two Chinese "washee-washees" had also retreated. The rain fell in torrents, and soon great hail stones rebounded from the sidewalk. The enthusiastic reporter, regardless of the storm, secured several specimens, carefully measured them with a pocket tape-line, and noted down the exact figures. Some young clerks in the offices above, seeing him repeat the operation, began dropping large chunks of ice from an ice-cooler. The reporter carefully measured these and recorded the result. The eyes of the awe struck Chinamen stood out with unusual roundness and prominence. One of the clerks above, in chopping off the block of ice accidentally dropped the balance, some 20 lbs., which fell with a crash, spattering the water right and left. Just then an awful crash of thunder startled all who heard it. This was too much for John Chinaman. They both ran yelling up the street, the last one saying as he cleared the doorway:—"Whoopee up. *Icee wagon come nextee.* Good-by John."

**Diagram Representations.**—Mr. Alfred Gray, the excellent Secretary of the Kansas State Board of Agriculture, shows much originality in his use of diagrams in representing the various statistical conclusions which he has obtained in his State. We reproduce three as illustrative of how much a few *lines* will show. Since 1876 the acreage of *winter wheat*, etc., has been as follows:

| WINTER WHEAT. | BARLEY. |
|---|---|
| 1876—758,600 | 1876—82,299. |
| 1877—857,125. | 1877—79,704 |
| 1878—1,297,555. | 1878—56,258. |
| 1879—1,520,659. | 1879—45,851. |

FLAX.

1876—59,138.73.
1877—27,735.37.
1878—37,001.70.
1879—69,383.17.

The heavy bars are made on a scale of a selected number of acres to the inch. In this way the general relation of the years is easily seen; in fact *it strikes the eye*. For example, it is evident that there has been a constant *increase* in the number of acres devoted to winter wheat, but that increase has been irregular. The *decrease* in barley has been about as rapid as the increase of wheat, but with more uniformity. Flax has been subject to great variation; or we may, by beginning with 1877, say that the increase in the acreage of this crop has been rapid, quite uniform, more than doubling in two years.

## Items of Interest.

A corn plant can produce four thousand fold; but fifty-fold is not far from the average....The front of a horse's head, when in natural position, should make an angle of 45 degrees with the perpendicular... Scarlet Fever caused more deaths in New York State last year than Yellow Fever in the South, but there was no unusual alarm ...Chicago slaughters 8,000 hogs per day.... 375 bushels of wheat from 10 acres are reported at Dundee, Mich....New York City pays four millions of dollars per year for her milk....From the report of the U. S. Consuls, on the condition of labor, it is seen that the wages in the United States are double those in Great Britain and France; three times those of Germany, and four times those of the Netherlands....According to the English Consul at Tien-Tsin the deaths in China during the late famine were 9,500,000 individuals.. Dr. Oliver Wendell Holmes is 70 years old....The maize crop is reported a failure in Syria....The advance sheets of the Illinois crop report show the average for winter wheat is 19¾ bushels per acre....During the fiscal year ending June 30, 1879, six million acres of Government lands were taken as homesteads....The acreage of winter wheat has doubled in Kansas in three years....From the Aleutian Isles to Eastport, Maine, our possessions extend over 197 degrees of longitude, or more than half around the globe....By actual count it is ascertained that 27,000 fairs are held annually in France....Over 50 patents have been obtained for cow milkers, yet none of them can be commended for general use....A good farmer's good rule: "Feed your land before it is hungry, rest it before it is weary, and weed it before it is foul." ....Massachusetts has about three dogs to one sheep. .. The first cheese factory in England was established in 1870, they have not more than 25 in all the kingdom.... Don't forget—"No frog, no foot; no foot, no horse," and have your horses shod often and by only those who follow this old adage....An apiary should be provided with a supply of water—wet sand will allow the bees to get water without danger....This is the time to build the ice-house which was so much needed during the summer....Weevil eaten peas will grow, but do not make good, strong plants....A sheep was sheared at 6.45 in the morning, and eleven hours after, the Emperor of Austria was presented with a suit, consisting of a hunting jacket, waistcoat, and pantaloons, made from the wool. This is quick work in the manufacture of clothing.

## Catalogues Received.

NURSERYMEN.

BAIRD & TUTTLE, Bloomington, Ill., are agents for the present proprietors of the most extensive nurseries established by F. K. Phœnix. Their wholesale list is full.

P. J. BERCKMANS, Fruitland Nurseries, Augusta, Ga.—This extensive establishment includes fruit and ornamental trees and florist's stock, and besides the general catalogues, one is issued especially for the fruit growers and cultivators of Florida.

A. BRYANT, JR., Princeton, Ill. The wholesale and retail lists of this, one of the oldest of Western nurseries, besides fruit trees, deals largely in forest trees and their seeds.

BUSH & SON & MEISSNER, Bushberg, Jefferson Co., Mo.—Grapes only, and an immense collection; the price-list of which is ingeniously arranged to give much information in a small space.

S. M. CUTTER, Holliston, Mass.—A trade list of fruit and ornamental stock.

SAMUEL C. DE COU, Moorestown, Burlington, N. J. Small fruits, with all the novelties.

H. M. ENGLE & SON, Marietta, Pa.—A special catalogue for new early peaches, strawherries, and raspberries.

FARLEY, ANDERSON & Co., Union Springs, N. Y., send us their wholesale list, which includes American and imported stocks for nurserymen.

WM. HOLLAND, Plymouth, Marshall Co., Ind.—General Nursery Stock, which purchasers are invited to call and select from.

T. S. HUBBARD, Fredonia, N. Y., makes a speciality of grapes, and also offers other nursery stock.

SAMUEL KINSEY, Dayton, O.—A wholesale price-list of a large assortment, with several novelties.

KELSEY & Co., St. Joseph, Mo., send out a wholesale fall list of fruit and ornamental stock.

W. T. KIRKMAN, Rose City, Pulaski Co., Ark. A general nursery stock of varieties suited to the Southwest.

J. B. LONG, Columbia City, Ind., sends a wholsalc list of grapes and other small fruits.

ROBERT MANN & SON, Lansing, Mich.—Special strawberry circular.

J. G. MCCONNELL & Co., Jacksonville, Ill.—A wholesale list for florists and dealers only.

D. S. MARVIN, Watertown, N. Y., makes a speciality of Grape Vines, and offers a very full list at wholesale and retail.

MISSOURI STATE AG'L. COLLEGE, Columbia, Mo.—We understand that, with a view to increase its income, a portion of the college grounds are to be devoted to a commercial nursery. It being under the direction of our old friend, Geo. Husmann, now Prof. of Pomology, etc., at the College, we are assured that it will be well done.

JOHN D. MORROW & SONS, DeVall's Bluff, Ark.—A full list, containing many fruits peculiar to the South-west.

E. MOODY & SONS, Lockport, N. Y.—One of the oldest of our nurseries, sends its wholesale lists. The "Mann" apple, said to be the best of the "iron-clads," is a specialty. Fruit trees are offered by the car-load.

T. V. MUNSON, Denison, Texas.—A general catalogue of fruit and ornamental trees and shrubs, and a special list of new early peaches.

SKED PADDOCK & Co., Cleveland, Ohio.—We always look to this catalogue for novelties, and this year find them as usual, with a full stock of standard sorts.

GEO. W. PARK, Mt. Vernon, Ohio.—An illustrated catalogue. Mr. P. continues his monthly "Floral Magazine."

PURDY'S FRUIT FARM, Palmyra, N. Y.—Small fruits in great variety, with descriptive notes; other fruits; ornamental plants, etc.

G. W. RENNEY, Newark, Ohio.—A goodly list of novelties precedes the full general list.

N. OHMER, Dayton, Ohio.—Small fruits in general, with a treatise of several pages on the Gregg raspberry.

WM. P. SIMMONS, Geneva, Ohio—New and rare plants offered very low in collections and to clubs.

F. TROWBRIDGE, Milford, Conn. — Special cranberry catalogue.

ABRAHAM B. WENGER, Dayton, Va.—A neat, compact descriptive list of well-selected fruit trees.

J. B. WILD, Bro's., Sarcoxie, Jasper Co., Mo.—A full list of fruit and ornamental stock, also greenhouse plants.

G. ZIMMERMAN & SONS, Buffalo, N. Y.—A very full list in all departments; that the proprietors are men of the most excellent judgment, is shown by their commending the *American Agriculturist*.

SEEDSMEN AND FLORISTS.

The catalogues in both these branches are so few this month, that we put them together.

B. K. BLISS & SONS, No. 34 Barclay St., New York City.—The Autumn list of this house, is even more full than in former years. Besides Dutch and other Bulbs, it offers seeds for late sowing, greenhouse plants, etc.

FRANCIS BRILL, Mattituck (L. I.), N. Y.—Wholesale list of select varieties of cabbage seed raised by him.

WM. H. CARSON, No. 125 Chambers St., New York City, issues a characteristically neat catalogue of Fall Bulbs, with directions for culture and other seasonable matters.

J. LEWIS CHILD, Queens (L. I.), N. Y., offers Hardy Bulbs, and issues the "Floral Instructor," in which he talks about them.

D. M. FERRY & Co., Detroit, Mich.—Bulbs, and a variety of winter-blooming plants for window and greenhouse.

F. A. MILLER, San Francisco, Cal.—Bulbs, and tree and shrub seeds, mainly those peculiar to the Pacific coast.

TYRA MONTGOMERY, Mattoon, Ill.—Separate catalogues of Roses and Geraniums, and very full in both.

GEORGE SUCH, South Amboy, N. J. As usual, this catalogue is a delight to the eye, on account of its exquisite neatness, and a delight to the plant lover who would read of one of the choicest of plant collections.

J. M. THORBURN & Co., No. 15 John St., New York City.—A very neat illustrated catalogue of Bulbs and Flowering Roots, including many not offered elsewhere.

J. C. VAUGHN, No. 45 La Salle St., Chicago, Ill. An illustrated catalogue of Bulbs and Florist's goods.

LIVE STOCK POULTRY, AND MISCELLANEOUS.

LOUIS ANDERSON, Flemington, N. J.—Poultry; Black Spanish and Games.

A. B. COHU, No. 197 Water St., New York City.—A very full and abundantly illustrated catalogue of farm implements, machinery, seed, etc., including the "Common-Sense Cutter; the "A. B. C. Right-hand Corn-Sheller," and numerous other specialities.

COWING & Co., Seneca Falls, N. Y.—A description of the Pumps, Fire Engines, Hydraulic Rams, etc., fill a large and handsome volume in their wonderful variety.

R. GOODMAN, Yokum Farm, Lennox, Mass.—Jersey Cattle, registered.

C. F. A. HEINRICHS, 29, 31, and 33 Park Place, N. Y.—A catalogue of seedsmen's and florist's articles. Bulb-glasses, pots, fixtures for window-gardening, etc.

J. B. LONG, Columbia City, Ind., sends his wholesale list of small fruits.

INCUBATORS.—A. M. Halsted, Rye, N. Y,

JOSEPH HARRIS, Moreton Farm, Rochester, N. Y.—Cotswold Sheep and Essex Pigs.

NEW JERSEY SULKY PLOW Co, Newark, N. J., make a sulky attachment which can be fitted to any plow.

EUGENE B. PENDLETON, Westerly, R. I., Poultry.—White Leghorns, only.

STEPHEN FREEMAN & SON, Racine, Wis.—Ornamental Iron-work, House Furnishing Goods, in a great number of beautiful designs.

PHŒNIX CASTER Co., Indianapolis, Ind. — Martin's Patent Casters of every size, and other fine castings.

S. C. CASSINO, Salem, Mass.—Outfit and materials for naturalists.

HENRY A. WARD, Rochester, N. Y.—Minerals, fossils, skeletons, and other Natural History illustrations.

G. S. WOOLMAN, No. 116 Fulton St., N Y.—Microscopes and appliances.

FOREIGN CATALOGUES.

J. A. FIELD & SON, Hamilton, Ont.—Feed Mills and other mills.

WILLIAM RENNIE, Toronto, Ont.—Seed Wheats of several kinds.

F. C. HEINEMANN, Erfurt, Germany.—Bulbs, seeds and plants in great variety.

J. C. SCHMIDT, Erfurt, Germany.—Wholesale catalogue of bouquets and ornaments of dried natural flowers, with a large list of Florist's appliances and fixtures.

J. W. WUNDERLICH, Frankfort-on-Maine, Germany, issues a special seed catalogue for America, full and neat.

A. A. DUNNICLIFF, Silver Spring, Burrawany, N. S. Wales, offers all of our recent introductions in the way of potatoes and vegetable seeds, and is evidently a wide awake seedsman.

VILMORIN, ANDRIEUX & Co., Paris, France.—Wholesale catalogue of French bulbs and flower roots.

AGRICULTURAL AND INDUSTRIAL ESTABLISHMENT, Petit Bourg, France.—Portable railroads, and machines for all kinds of manufactures, described and illustrated in a volume, rather than a catalogue.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Any of the above sent, post free, on receipt of price.
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The Morals, Health, Beauty, Work, Amusements, Members, Money, Savings and Spendings are all clearly dealt with in **fascinating style,** full of **anecdote,** and holding the threads of a charming narration of **family life.** For full description and **extra terms,** address
**J. C. McCURDY & CO., Philadelphia, Pa.**

**18** ELEGANT NEW STYLE CHROMO CARDS, with name, 10c., post-paid.
GEO. I. REED & CO., Nassau, N. Y.

**50** CHROMO, SNOWFLAKE, AND LACE CARDS, with name, 10c. 40 all chromos, 10c.
STAR PRINTING Co., Northford, Ct.

**60** Perfumed Chromo &c. cards, name on, 10c. 42 Mixed cards a fine pocket knife, 25c. Autograph Album 20c. Game Authors, 15c. 35 Fun cards 10c. Clinton Bros., Clintonville, Ct.

**20** New Styles Chromo Cards, 10c., or 25 New Styles Mixed, 10c., post-paid.
J. B. HUSTED, Nassau, N. Y.

**50 FINE CARDS,** no 2 alike, with name and case, 10 cts. 50 White 10 cts.
POSTMASTER, Higganum, Ct.

A SPLENDID PRESENT, 1 Gilt Bound Autograph Album, containing 48 beautifully engraved pages, also 47 select quotations, all for 15c., post-paid. Postage stamps taken. Agents wanted. FRANKLIN BROS., West Haven, Conn.

**125** Hours MUSICAL Instruction NEW ENGLAND CONSERVATORY, Music Hall, Boston. E. Tourjée, Director. **$15.**

**$350** A MONTH—AGENTS WANTED—75 BEST selling articles in the world; one sample *free*. Address J. BRONSON, Detroit, Mich.

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**AND LIQUID** is the Cheapest, Most Reliable, and Best-Known Method of preserving all kinds of **Fruit, Tomatoes, etc. Strawberries, Raspberries,** and all high-colored Fruits, retain their rich color as well as flavor. One ounce of it (costing 3 cts.) is equal to 8 lbs. of sugar in preserving property.

Established over ten years, and endorsed by thousands upon thousands of families. One trial will establish the fact that the **American Fruit-Preserving Powder and Liquid** will effectually prevent fermentation, and preserve all kinds of **Fruit, Tomatoes, etc.,** and keep them the year round, or for years, in jars of any kind or size, or in wooden kegs and barrels, *without sealing air-tight*. Simply corked or tied down with a strong paper is all that is needed.

The fruit will keep *without sugar*, or any quantity of sugar may be added as desired.

*Warranted to be as healthful as table salt.*

The Fruit, etc., may be cooked little or much, as desired. They will keep without any cooking, or they may be cooked down into sauce. The method is simple and easy. None can fail if the Powder and Liquid is added into the Fruit, etc., in quantities as directed.

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Give it a trial. If you can not get it from your Druggist or Grocer, I will send it prepaid to any express office in the United States, east of the Mississippi River, upon receipt of the price; or west of the Mississippi River and east of Rocky Mountains for $1.25 per package. **Local and General Agents Wanted.** Address,

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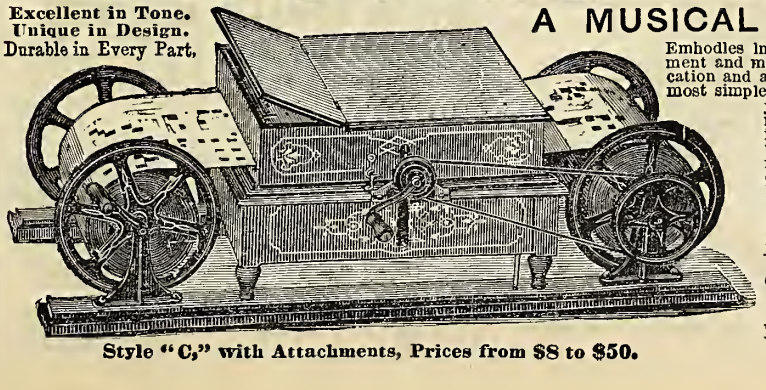

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**Thirty** high grade Jersey heifers and cows, ¾, ⅞, and 15-16; all have more or less Ayrshire blood, and were bred for their butter qualities. Will yield from 8 to 14 lbs. splendid butter per week. My prices range from $85 to $200. Ages from 2 to 8 years. Color mostly fawn and white.
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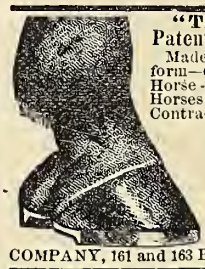

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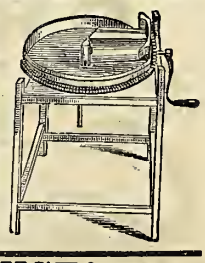

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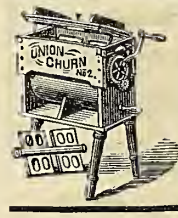


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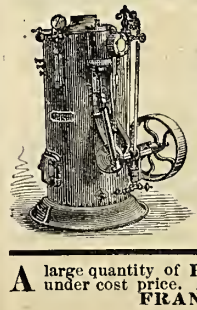

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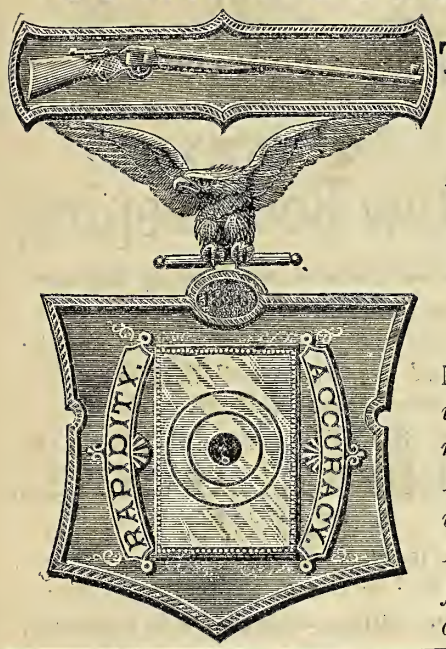

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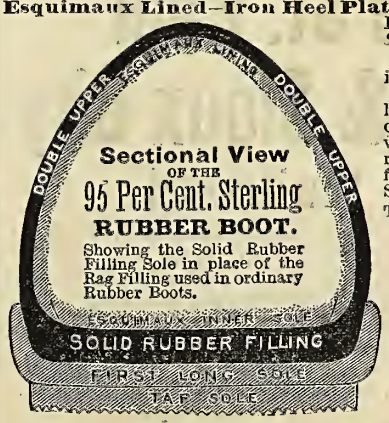

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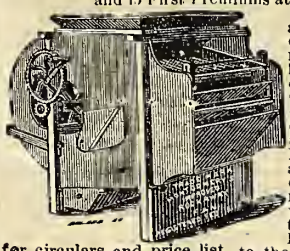

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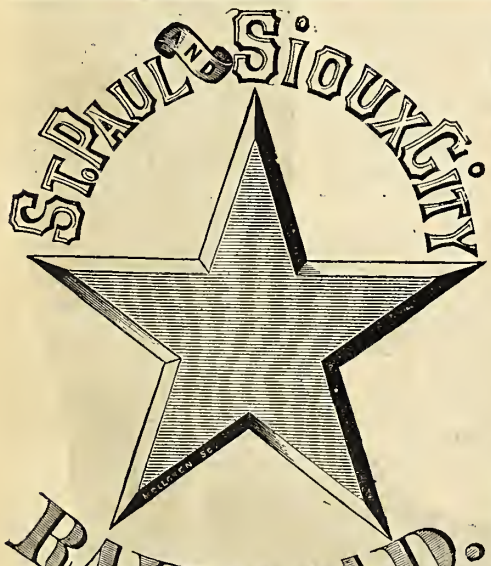


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In June of 1872 we gave illustrations of a Trochar and Cannula to be used in ringing a bull, and on page 13 (January) and page 97 (March) of the *American Agriculturist* for 1873 (copies of which may be got from this office for 15 cents each) we described the use of this apparatus in relieving hoven in cattle. These articles have brought out a large demand for Trochars, and failing to find just the right kind among the makers of surgical implements, we have induced an establishment to undertake their manufacture. We give herewith a small engraving of the Trochar. These articles are now in the trade, and may be had of most dealers in agricultural implements. Those who can not get them from dealers can receive them from this office, prepaid, for $1.00.

**A COPPER BULL-RING**

2½ inches in diameter, of the most approved pattern, with screw-driver for putting it together, will be sent, prepaid, on receipt of $1.00. Address

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Of Choice Lands For Sale.

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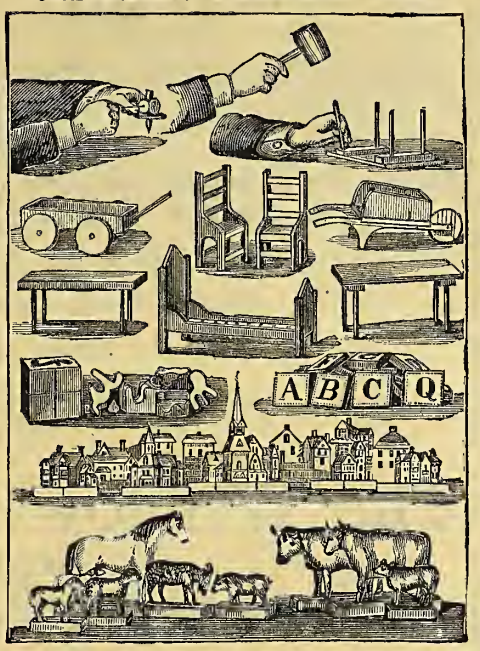


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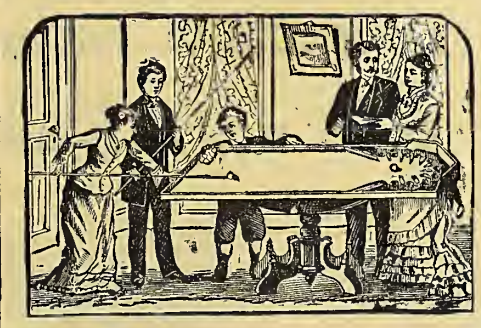

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Each Board is packed in a good stout case. The freight is to be paid by the recipient.

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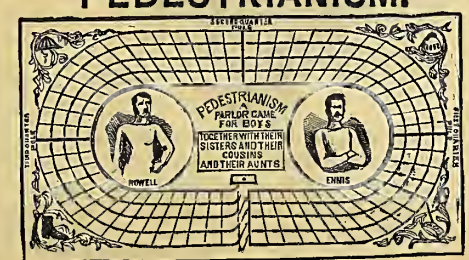


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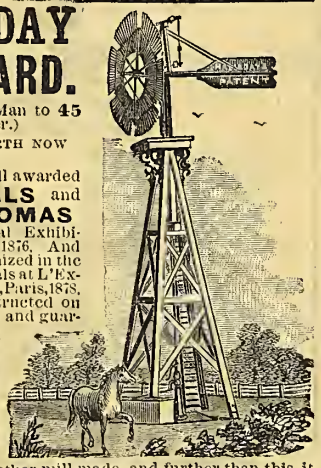

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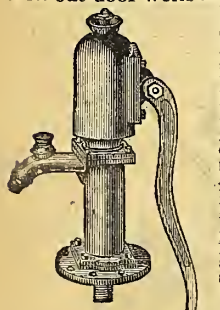

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# AMERICAN AGRICULTURIST.

FOR THE FARM, GARDEN & HOUSEHOLD.

# SUPPLEMENT

TO

# AMERICAN AGRICULTURIST

FOR

## OCTOBER, 1879.

OCT. 1879.

PUBLISHED BY THE
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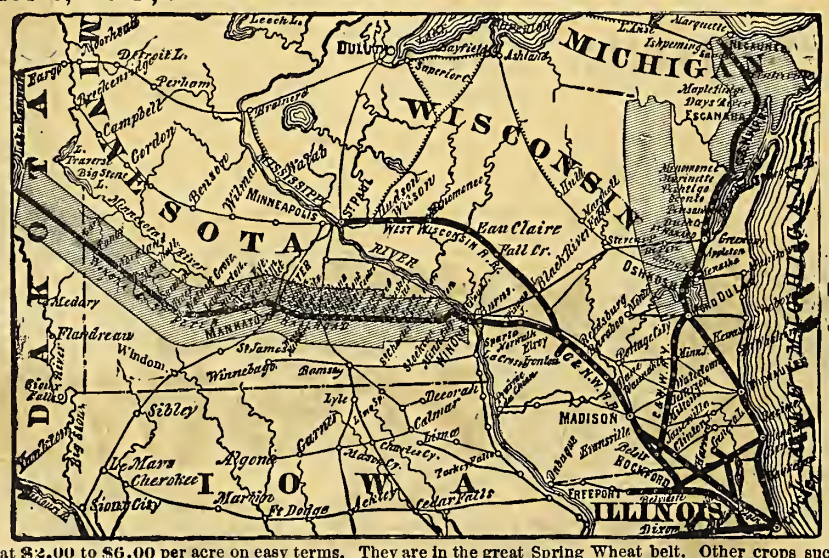


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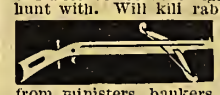

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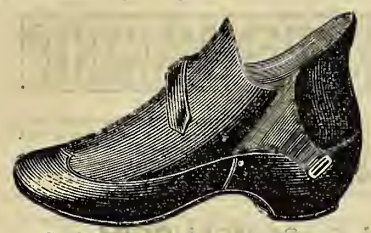
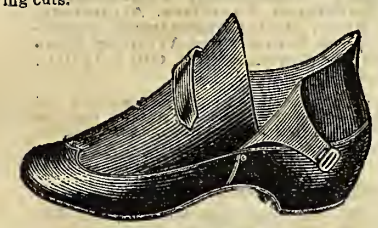


Candee Patent Snow-Proof Arctic.

All the CANDEE Arcties are of this style, and their superiority over the old can be seen by comparing the accompanying cuts.



Old Style of Arctic.

These new goods are *higher cut* than others, and the cloth is carried down *under* the Rubber foxing.

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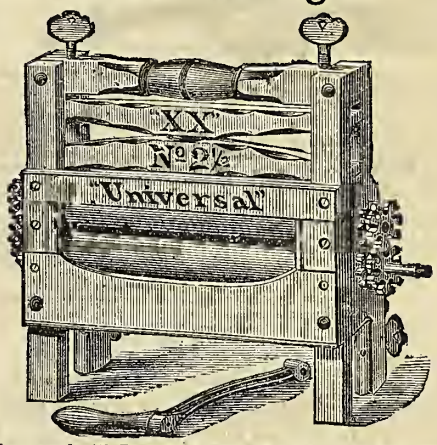


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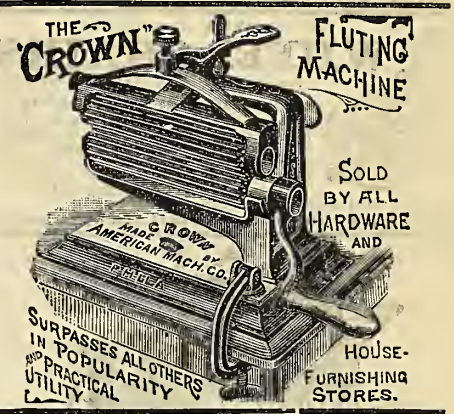


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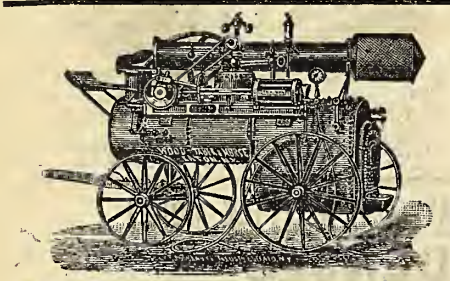

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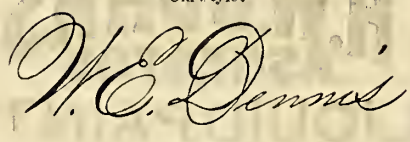

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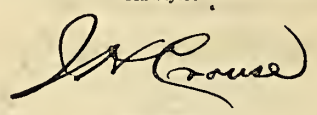

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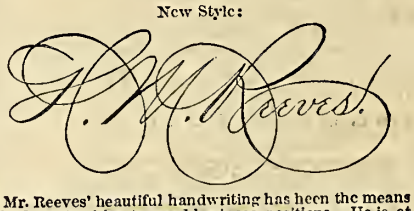

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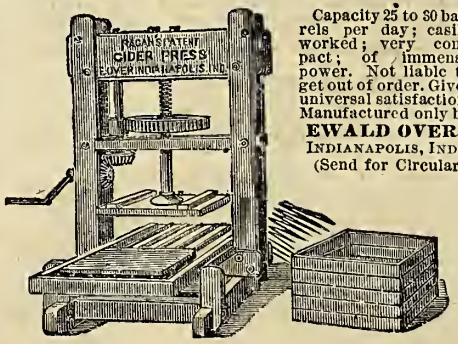


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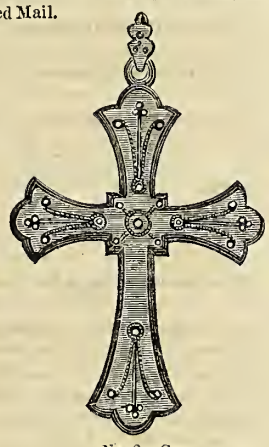

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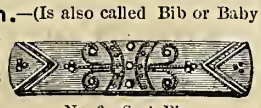

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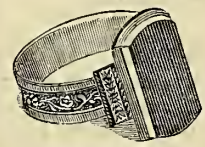

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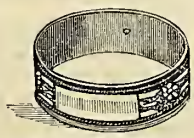

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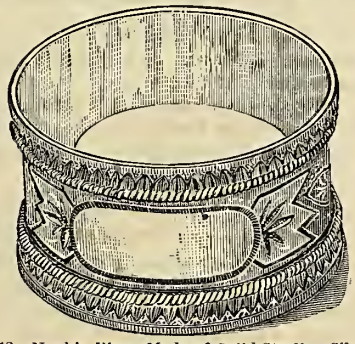

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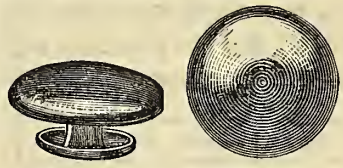

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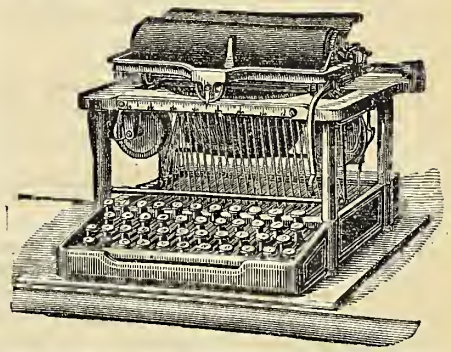
No. 16.—Collar Button.



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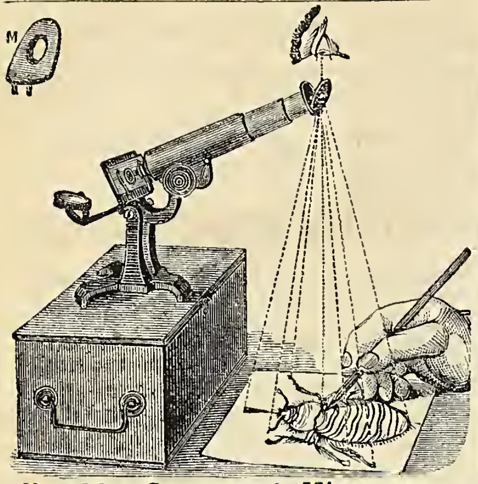
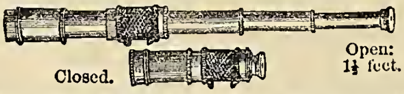


**No. 20.—Compound Microscope.**—This new instrument is a wonderful success, and has already received the strongest praise from many of the highest scientific authorities. It has all the chief parts of the most costly instruments, with several improvements, and is supplied with a **Camera Lucida,** enabling any one to throw upon paper, and easily sketch in large size, objects too minute to be seen by the unaided eye. It defines very clearly, and has a magnifying power up to 150 diameters, or many thousand areas. It is as valuable as any Microscope hitherto obtainable, with Camera Lucida, for **$50** to **$100.** (A full description mailed to any one desiring it.) By means of new inventions and the use of machinery in constructing its parts, it can now be supplied at retail for only $15, all complete, in neat Walnut Case, with sundry adjuncts, specimens, full directions for use, and Prof. Phin's Microscopic Treatise. (To subscribers to the *American Agriculturist*, for whom it was specially designed, it will be forwarded on receipt of $10.) It will be presented to any one obtaining *ten* subscribers, at $1.50 each. Expressage paid by recipient. No more interesting and valuable article for one's own use, or for a Holiday or other present, can anywhere be found. ☞ *One of these Microscopes should be placed in* EVERY *Public and Private School.* This Microscope is also of special utility to Physicians.




**No. 22.—Spy Glass or Pocket Telescope.**—(Achromatic).—Much the best one for the price we have ever seen. It defines and magnifies distant objects quite plainly. Made of fine drawn brass tubing, corded, with sun or storm shade; when closed up fits into a case, carried easily in the pocket. From J. Curley & Bro., Optical Instrument Dealers, 134 and 136 Nassau St., N. Y. Only 4 subscriptions, at $1.50 each, will secure this. [Or we will supply it for $3.] Sent by express; the recipient to pay expressage in either case.

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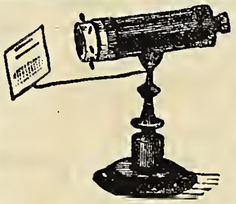

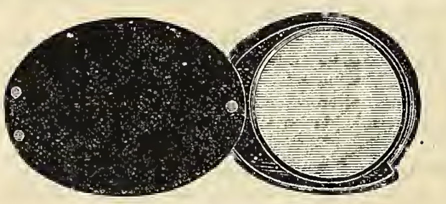

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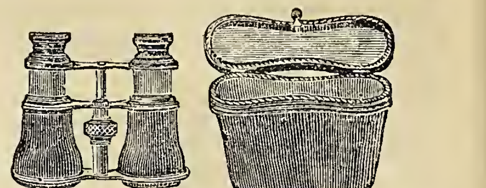
**No. 24.—Magnifying Glass, and Sun Glass.**—Of excellent quality, made by the Bausch & Lomb Optical Co.; very useful to magnify all ordinary objects, printed matter, needle-work, cloth, plants, flowers, etc., etc. Closes in a neat polished hard-rubber case for carrying in the pocket. It is also a good Sun or Burning-glass, concentrating the sun's rays to produce fire. Diameter of Lens, 1½ inches. Sent, post-paid, for $1.20. *Presented* for *two* subscribers at $1.50 each.

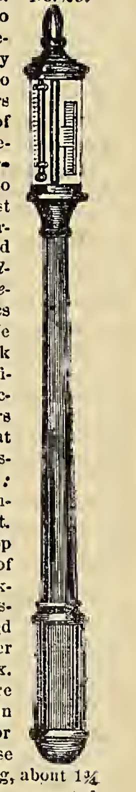


**Nos. 26, 27.—A Good Opera Glass,** in Leather Case, of strong magnifying power, excellent for examining objects at considerable distances, seeing scenery, etc.—No. 26, in Jet, or in gilded (gold-plated) mountings as desired. Diameter of Object Lens, 15 lines (1¼ inch). Price, $5.50. Presented for 7 subscribers at $1.50 each.—No. 27, same as the above, but larger; Object Lens, 17 lines ($1^5/_{12}$ inch), Jet mountings. Price, $6. Presented for *eight* subscribers at $1.50 each. ☞ If to go by mail, send us 25 cents for postage & packing.

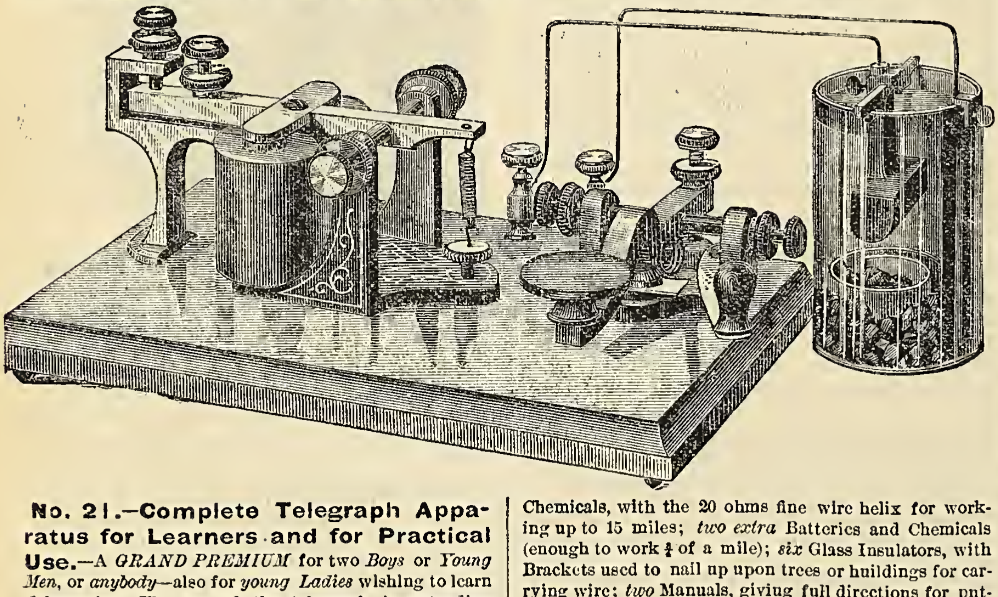
**Nos. 28, 29.—Good Barometers** are *very Useful to Everybody, now.* The recent improvement in weather observations enables one to readily know what the weather is likely to be many hours in advance, and such knowledge is of great value in caring for crops, animals, in planning work, etc.

No. 28.

No. 29.

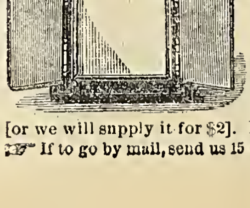


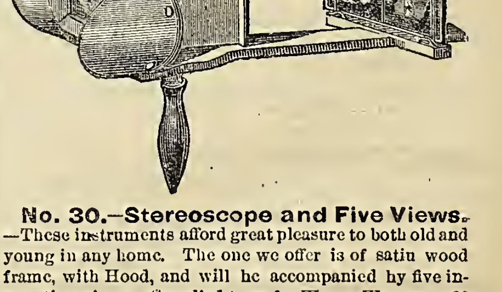
To almost every farmer, and to many others, a good Barometer will every year pay a very large interest on $100.—To meet this want, the Publishers have arranged to supply one of the most accurate, simple, desirable, and cheapest **Mercurial Barometers** to be found in the country—just as good for all practical purposes as one costing a hundred dollars, or more, viz.: *Woodruff's Patent Portable Barometer*, manufactured by Charles Wilder, Peterboro, N. H. We have tested Mr. Wilder's work for many years, and can confidently recommend the barometer to all. The Barometers offered are so portable that they can be sent to any distance safely. — *Description:* No. **28** is cased in finely finished, polished Black Walnut. Length, 3 feet; width of top and base, 4 inches: width of shaft, 2 inches; depth (thickness), 1¾ inch, with pedestal, 2½ inches deep; mounted with metallic plates, Vernier scale, *Thermometer*, and index. Glass door over the face. Price reduced to $12.—No. **29** is in neatly turned Case of maple or Cherry. Length, 40 inches; diameter of base and top, 2½ inches. Shaft slightly tapering, about 1¾ inch in diameter. Semi-circular glass face; mounted with metallic plates, Vernier scale, and *Thermometer*. Price reduced to $8.—These Barometers will be securely packed, and forwarded direct from the manufactory to any address. (The cost of carriage, which will be small) to be paid by receiver.—We present **No. 28** for 13 subscribers, at $1.50 each; or **No. 29** for 10 subscribers.—[On receipt of price we will forward either barometer]. Send to Mr. Wilder for a full description of instruments.



**No. 21.—Complete Telegraph Apparatus for Learners and for Practical Use.**—A *GRAND PREMIUM* for two *Boys* or *Young Men*, or *anybody*—also for *young Ladies* wishing to learn Telegraphy. The use of the telegraph is extending everywhere. It is but little work to learn its simple language, and then two persons can hold instant communication over any distance, long or short. Every growing boy and girl may well learn this language. Messrs. L. G. Tillotson & Co., of 5 and 7 Dey St., New York, the celebrated largest manufacturers of Telegraph Instruments in this country, are now making very complete and perfect working Telegraph Instruments, (*see Engraving*), with Batteries, etc., at a price so low as to place them within the reach of all. It will cost but little to put them up between houses, business shops, dwellings, and stores, farm buildings, etc. We have arranged for the following most valuable PREMIUM SET. Two Boys or Young Men, in any neighborhood, by getting this *double set*, can connect their homes, (1 to 15 miles apart, if they wish), and talk with each other, and at the same time learn to be able to use any telegraph, at any time, and anywhere. The complete Outfit will contain **Two** sets of Instruments with Batteries, (only one set is shown in the engraving), including the Batteries and Chemicals, with the 20 ohms fine wire helix for working up to 15 miles; *two extra* Batteries and Chemicals (enough to work ¼ of a mile); *six* Glass Insulators, with Brackets used to nail up upon trees or buildings for carrying wire; *two* Manuals, giving full directions for putting up the apparatus, and instructions for learning and using. Cost $12.00. ☞ We will PRESENT the whole **double** apparatus, as above, to any one sending us only 15 subscriptions, at $1.50 each. (At $5.00 expense for each extra house, three, four, or a dozen houses may be put in the same line.) Freight paid by recipient.

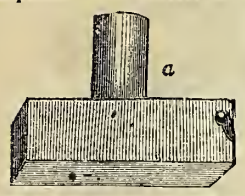
**No. 25.—Cabinet Photograph Frame.**—It is made of blue or maroon-colored silk velvet, with nickel-plated moulding, door-hinges and knobs the same, suitable for an Imperial-size Photograph. Size, 8¼ × 6¼ inches, and very handsome. From E. I. Horsman, 80 and 82 William St., N. Y. Price, $2. Three subscriptions at $1.50 each will secure it [or we will supply it for $2]. Receiver to pay expressage. ☞ If to go by mail, send us 15 cents for postage & packing.



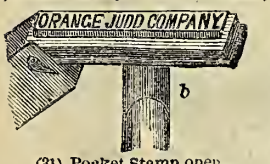


**No. 30.—Stereoscope and Five Views.**—These instruments afford great pleasure to both old and young in any home. The one we offer is of satin wood frame, with Hood, and will be accompanied by five interesting views. Supplied to us by Willy Wallach, 36 Park Row, N. Y. (Other views can be purchased of us at ten cents each.) Four subscriptions at $1.50 each will secure this. [Or we will supply one, with five views, for $2.75.]—Expressage to be paid by receiver in either case.

**Nos. 31, 32.—Rubber Pocket Stamps** (Scott's Patent).—*Simple, Effective, Useful, Convenient, and Most Desirable*—always inked and ready for use. Fig. *a* shows a nickel-plated case (full size), to be carried in the vest pocket. It can be used as it is, or a pencil can be put in the stem as a handle.—Fig. *b* shows the same with the cover turned back for use. This cover has a pad that inks the rubber type every time it is closed, so that it is always ready. The *rubber* type is on a separate slide, which can be slipped out, and others put in, and may have 1, 2, 3, or 4 lines of type on it.—Fig. *d* is a *print* from a vest Pocket Stamp, like one we have carried for months, using it to mark clearly anything desired, and also save carrying a pocket full of cards.—Fig. 32 is a print from a Round Pocket Stamp, used particularly in place of business cards, and to mark parcels, etc. This is of exact size. It shuts into a cover, making a *round* pocket box, about half an inch thick. These can have anything in *rubber type* desired on them of about the amount shown in fig. 32. The cover contains an ink-pad, which inks the type whenever it is closed. These Stamps can be used without new inking from 1 to 3 months, and for re-inking a can of carmine ink goes with each stamp, for replenishing the pad occasionally. Every business man will find these Stamps a great convenience, in place of ordinary business cards, for marking parcels, etc. The Rubber type is very durable, and being elastic, prints well on hard surfaces also.—For two subscriptions at $1.50 each, we will present, post-paid, No. 31 with one or two lines of any type as desired, [or send it post-paid for $1.25.] (For each additional line of type above two, 25 cents extra.) For 4 subscriptions at $1.50 each, we will present post-paid No. 32, all complete, with any type desired, [or send it post-paid for $2.75.]—NOTE.—For 46 cents extra, we will send with No. 31 an extra slide, with one line of rubber type (a full name if desired), and bottle of indelible ink, for marking linen, clothing, etc.



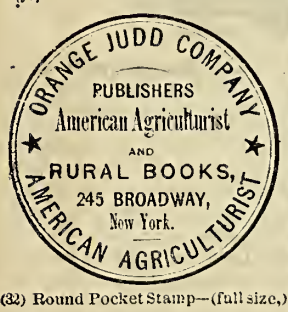
(31) Pocket Stamp closed—(full size.)



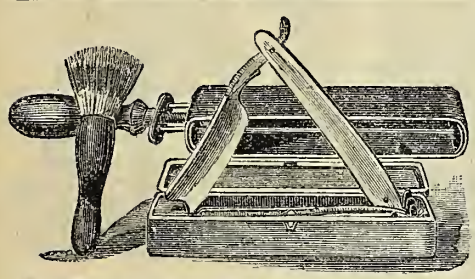
(31) Pocket Stamp open.

(d) Rubber Slide & Type.

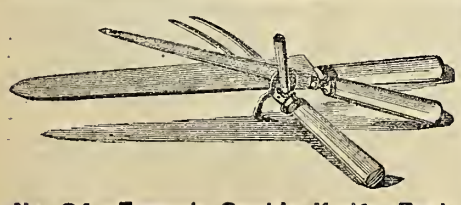
RICHARD ROE,
New York City.



(32) Round Pocket Stamp—(full size.)



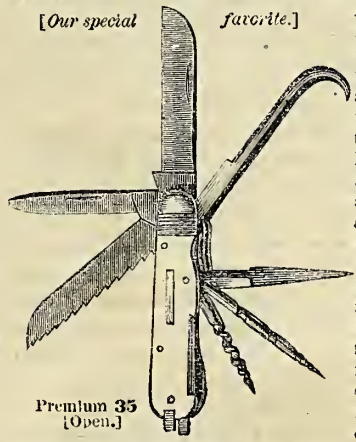
**No. 33.—Shaving Set.**—This consists of a pair of fine Steel Razors, made by Joseph Rodgers & Sons, Sheffield, England, packed in a leather case, one of Goldschmidt's Razor Strops, and a Shaving Brush. From J. CURLEY & BRO., 134 and 136 Nassau St, N. Y. Price, $5.50 for the set. Only 7 subscriptions at $1.50 each, will secure this [or we will send the set for $5.50]. Sent by mail, post-paid, in either case.



**No. 34.—French Cook's Knife, Fork, and Steel.**—This is a long (10 in.) thin Knife, with Celluloid or Patent Ivory Handle, warranted not to crack in hot water, made of the best steel, and for use rather than ornament; and it is really pleasing to see how easily it slips through a joint of beef. The fork and steel are made to match, and the fork is supplied with the very convenient patent rest. It would save many wry faces, and perhaps hard words, were it in general use. Supplied by the MERIDEN CUTLERY CO., 49 Chambers St., New York. Only 5 subscribers to the *American Agriculturist* at $1.50 each, will secure the whole *free*. [We will supply the set for $3.75.] Receiver to pay expressage.

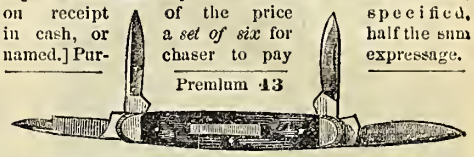
**No. 35.—Multum in Parvo Pocket Knife.**—☞**Boys, Read this.**☜ Yes, and the *Men*, too. The Editor thinks more of this than any other article of twice its cost. He obtained one in London just *twelve years* ago, which *he still carries*, and says it far more than pays the interest on $100, (2 cents a day,) for, aside from its ordinary use as a double-bladed knife, some one of its "tools" is often worth a "quarter," by being on hand and just the thing wanted in an emergency. He sent an order to England at three different times, but only received much larger, clumsier articles, less effective, and costing $5 each, and finally learned that the original maker was dead. He then got some English cutlers here to make them, but they did not always succeed in keeping up a supply of first-class articles. We now get them *all right* of the MERIDEN CUTLERY COMPANY, and much cheaper than any imported. The Engraving shows the parts of the knife, except the very convenient and very effective *Screw-driver* hidden by the opened large blade. The *Saw* is double-toothed, and will cut an inch board, saw off a good-sized stick, cut a notch, etc. The *Hook* is used to lift a stove-cover, pry open sundry things, clean a horse's hoof, pull on the boots, etc. The *Punch* makes holes in harness, wood, etc., which can be enlarged by its sharp corners. The *Gimlet* and *Corkscrew* are convenient, of course. The *Tweezers* and long *Pointer*, or *Brad-awl*, drawn from the end of the handle, often come into use. The back of the Hook makes a good *Hammer* for tacks, and small pounding. The inside of the Hook forms a small *Nut-cracker*. All close into a compact white handle, the whole weighing only 2 ounces. IT IS A POCKETFUL OF TOOLS. This year only *five* subscribers at $1.50 each brings it *free*, post-paid.—[We will send one, post-paid, for $3.50.]

[*Our special favorite.*]


Premium 35 [Open.]

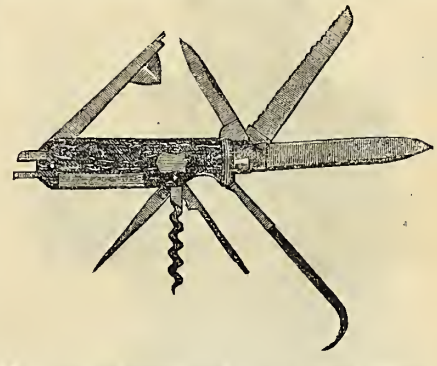
Premium 35 [Closed.]

**Nos. 36, 37, 38.—American Table Cutlery.**—*Useful, very desirable, well tempered,* and *wanted* by *everybody!* We are glad to be able to offer really *good* articles of *American* manufacture, such as are competing *successfully* with the best foreign make. The MERIDEN CUTLERY COMPANY, who supply them to us, recommend these Knives as equal to any Cutlery in the market, and their recommendation is a guarantee wherever they are known. We offer two kinds of Knives, and *three* sizes of *each* kind. No. **36** have Rubber Handles, which are actually boiling-water proof, so that, if they were accidentally to remain in it for several minutes, or even hours, they would not be injured. The Blades are of the *best steel*, and *warranted*. Premium **36** is the Desert or Tea size, sold at $14.75 per *dozen*. We present of these *twelve* knives and *twelve* forks to any one sending only 16 subscribers at $1.50 each... For 17 subscribers, at $1.50, we will give either the medium size, or the large Dinner size, sold at $15.70.—Premium **37** have *Ivory* Handles, are selected with great care, have Steel Blades, and are beautiful articles; they are the Tea or Dessert size, which, with forks, sell at $18.50. Only 19 subscribers, at $1.50 each, secures these .. For 22 subscribers at $1.50, we will send the medium size, or the Dinner size, sold at $21.20....For 23 names, at $1.50, we will send the larger Dinner size, sold at $22 50. The Forks, which accompany these Premiums, (Nos. **36** and **37**), are made of genuine Albata, and warranted *double-plated with coin-silver*. These Forks are furnished to us by the MERIDEN CUTLERY CO.....Premium **38**, the Carving-Knife and Fork (given for only 5 subscribers), are made by the MERIDEN CUTLERY CO., with fine Celluloid Handles. Price $3.50. They are beautiful, and serviceable articles for daily use. These premiums are very useful and desirable, and have been secured by many persons in past seasons.—[We will send any of the above named articles, on receipt of the price specified, in cash, or a *set of six* for half the sum named.] Purchaser to pay expressage.


Premium 43

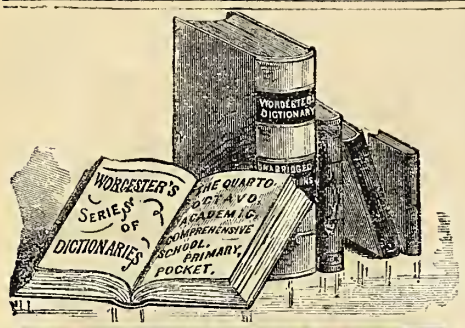
**Nos. 39 to 43.—Pocket Knives.**—HERE'S FOR THE **Boys** AND **Girls!**—These Premiums are among the most pleasing and useful that we have ever offered. Every boy, and girl too, wants a pocket knife. We give them an opportunity to obtain a most valuable one, for merely a little effort. Any boy or girl can easily collect the few subscribers, required to get one of these fine premiums *free*. These knives are furnished by the MERIDEN CUTLERY CO., 49 Chambers St., New York, whose work is *equal to any done in this country or Europe*. No. **39** is a neat, substantial $1.00 Knife, *four* blades and *stag* handle, given post-paid for only 2 subscribers at $1.50 each.—No. **40** is a similar Knife of extra quality, price $1.50, given post-paid for only 3 subscribers at $1.50 each.—No. **41**, a $2.00 Knife, Pearl handle, given post-paid for 3 subscribers at $1.50 each.—No. **42**, a $2.75 Knife, *five* blades, Pearl handle, sent post-paid for only 4 subscribers at $1.50 each.—No. **43**, Ladies' four-blade, Pearl handle, $2.00 Knife, given post-paid for 3 subscribers at $1.50 each. [Any of the above Knives will be supplied post-free for the price named for each.]

**Nos. 44 to 48.—Pocket Knives.**—All Knives, whether sold or given as premiums, will be sent *post-paid*, or in "Registered Mail" if 10 cents be sent us. No. **44.**—*Pocket Knife*, 4 *Blades*. Stag or ivory handle. Price, $1.00. Two subscriptions, at $1.50 each, will secure this. [Or we will send it for $1.] No. 45.—*Pocket Knife*, 4 *Blades*. Larger size. Stag or ivory handle. Price, $1.25. Two subscriptions, at $1.50 each, will secure this. [Or we will send it for $1.25.] No. 46.—*Pocket Knife*, 4 *Blades*. Pearl or tortoise-shell handle. Three subscriptions, at $1.50 each, will secure this. [Or we will send it for $1.50.] No. 47.—*Pocket Knife*, 4 *Blades*. Larger size. Pearl or tortoise-shell handle. Three subscriptions, at $1.50 each, will secure this. [Or we will send it for $1.75.] No. 48.—*Pocket Knife*, 4 *Blades*. Pearl or tortoise-shell handle. Three subscriptions, at $1.50 each, will secure this. [Or we will send it for $2.] All the above Premiums (Pocket Knives), are furnished by J. CURLEY & BRO., 134 and 136 Nassau St., N. Y., and all made by Joseph Rodgers & Sons, Sheffield, England.

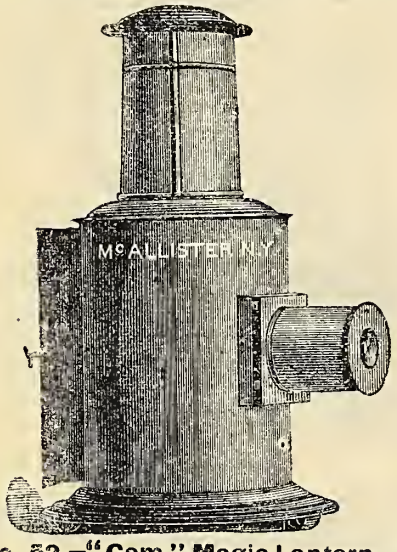


**No. 49.—Sportsman's Knife.**—Made by Geo. Wostenholm & Son, of England. Stag handle; length, 3½ inches; contains screw driver, two knife and one saw blade, hook, punch, gimlet, corkscrew, tweezers, pointer, brad-awl, and lance. From same firm as No. 44.—Four subscriptions, at $1.50 each, will secure this. [Or we will supply it for $3.00.] Sent post-paid.

**No. 50.—Pair of Knife Rests.**—Very neat and convenient little things for any dining table, being receptacles for the carving-knife when it is not in use. They are made of steel, and nickel-plated. Made by H. M. QUACKENBUSH, Herkimer, N. Y. One *new* subscription, at $1.50, will get these. [Or supplied for 75c.] ☞ If to go by mail, send us 6 cents for postage & packing.




**No. 51.—A Grand Premium.**—[Presented now for only *ten* subscriptions.] A large, handsome Volume of **1854** pages, containing considerably more than **100,000** words in its Vocabulary, with the correct Pronunciation, Definition, and Etymology. Fully illustrated and unabridged. Four full-page illuminated plates. Bound in library sheep, marbled edges. Price, $10.00. Most of the thoroughly educated men of the country consider this as by far the best Dictionary in the English Language. It is now regarded as the STANDARD AUTHORITY, and so recommended by Bryant, Longfellow, Whittier, Sumner, Holmes, Irving, Winthrop, Agassiz, Marsh, Henry, Everett, Mann, Stephens, Quincy, Felton, Hilliard, Mcmminger, and the majority of our most distinguished scholars. As a source of *general information*, this grand volume stands next to the Universal Cyclopædia. *It should be in every family.* It is offered on far more favorable terms than ever before. Let a multitude of Boys, and Young Men, *each* get **only 10** subscribers, at $1.50 each, for which we will *present* this invaluable work. *A great many have done so in the past*, when many more subscribers were needed to obtain it free. It is worth trying for all winter; but you can get subscribers enough in a week (only ten) to obtain it *free*. It is published by Messrs. J. B. Lippincott & Co., Philadelphia.—[We will supply this Dictionary for $10.00.] It can be taken at the office, or sent by express.—The carriage to be paid by the receiver.




**No. 52.—"Gem" Magic Lantern.**—The Gem is a new style of Magic Lantern, designed especially for the amusement and instruction of the young; and intended to supersede the imported "Toy" Magic Lanterns, over which it possesses the following advantages: The *Body* of the Gem Magic Lantern is convenient in form—is substantially made of strong tin, neatly japanned, and will last for years. The *Lenses* are of excellent quality, accurately ground and polished, and define the views clearly upon the screen. The *Light* is obtained by the use of an improved candle in a patented carrier, which keeps the flame constantly in the central line of the lenses, and yields a good illumination. As there is no oil or fluid of any kind, cleanliness is the result, and a child can safely operate the Gem Magic Lantern without difficulty. The *Magnifying Power* is abundant, and the Views can be distinctly enlarged to three feet in diameter, or larger. The *Slides* are neatly finished, and highly colored. Made by Thos. H. McAllister, Manufacturing Optician, 49 Nassau St., New York. We also include with Lantern twelve Gem Magic Lantern Slides, with pleasing views. 9 subscriptions, at $1.50 each, will secure this premium. [Or we will supply one, with the 12 slides, on receipt of $7.50.] Expressage in either case to be paid by receiver.

**No. 53.**

## Premium Extraordinary.

**WORCESTER'S**

### POCKET DICTIONARY.

**(Over 18,000 Words.)**

Here is a *Great Convenience* for every one—a Neat, Handy Dictionary, in firm, flexible-cloth binding; size, 3¾×4⅝ inches; **313 pages**; very clear print, for old eyes even—just the book for use, and easily carried in the pocket. It contains over **18,000 words,** Abbreviations, Rules for Spelling, Pronunciation, Spelling and Definition of Words, many valuable Numerical Tables, etc. Also over 100 Engravings. (These are small, but very useful in illustrating words.)

**The above Pocket Dictionary will be sent POST-PAID to Every One who will forward one NEW Subscriber for the American Agriculturist at $1.50.**

**To Every One who forwards THREE NEW Subscribers at $1.50 each, we will present, post-paid, FOUR Copies of this Pocket Dictionary,—one for himself, and one for each of the new subscribers.**

☞ *Of course, in this, as in all other cases, the names can count on no other premiums.*

**Webster's Pocket Dictionary.**—Ivison, Blakeman, Taylor & Co.'s Edition. This volume is abridged from the American Dictionary of Noah Webster, L.L.D. By William G. Webster and William A. Wheeler. It embraces a careful selection of about 18,000 of the most important words of the language, and is illustrated with nearly 200 engravings on wood. Bound in cloth, illuminated sides. Price $1.00.—This will be sent for two new subscriptions at $1.50 each.

**No. 34.—Special.**

## A GREAT OFFER.

### From 1 to 23 Large Volumes.

We have Electrotype Plates of the *American Agriculturist* since 1857, and can print and bind any number of *new* volumes. These **23 Large Volumes** contain a vast amount of most *Useful* and *Practical Information*, collected by a great number of *active, earnest, intelligent, practical Men* and *Women*, and illustrated with **many thousands** of *beautiful, pleasing*, and *instructive* **Engravings,** that have *cost over* **Two Hundred Thousand Dollars.** These Volumes are alone a *large* and *valuable* Library

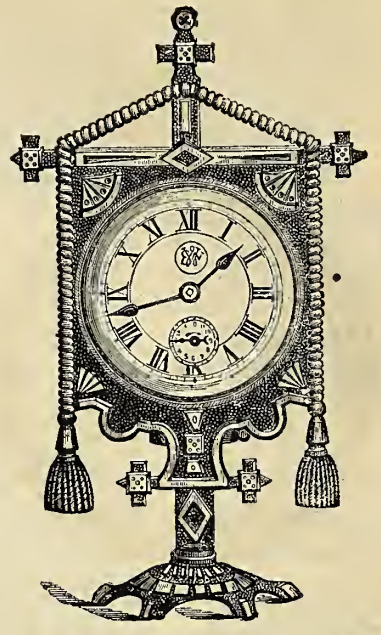
FOR THE

**FARM, GARDEN, AND HOUSEHOLD,**

and *kindred Subjects*, containing more varied information on all those matters than can be found in books that would cost **five** times the price of these. Each of these **23** Volumes has a full Alphabetical Table of Contents, for readily referring to any article or subject in the Volume. They are neatly Bound in uniform style, with gilt title, etc.; they are very convenient, and will finely adorn the Book-Case or Table. The price of these volumes, neatly bound, is $2.00 each, or, sent post-paid for $2.30. To every person who is himself a subscriber we will present and send post-paid, any One of the above volumes, in return for every three **new** subscribers he will send at the regular subscription price of $1.50 each. The receiver of the Premium can make his own selections from any of the volumes between 1857 and 1878 (inclusive).

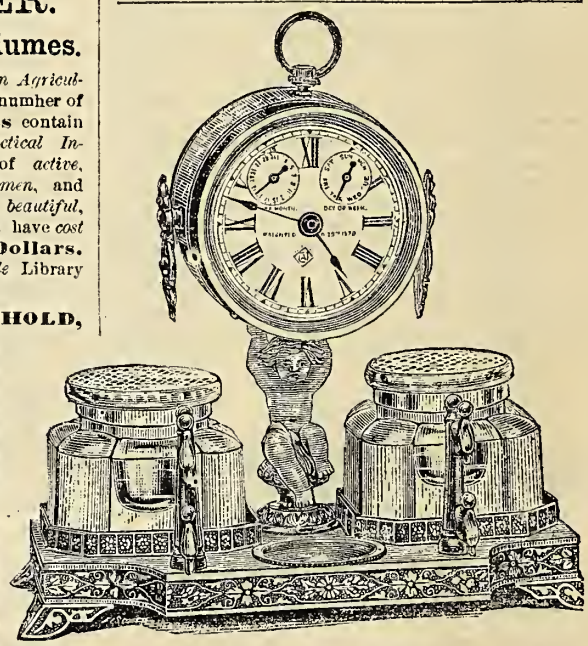
☞ *Every* neighborhood ought to have a set of these Volumes as a **Farmer's Library,** and they can now be easily obtained by individuals, or by a combination of two or more persons in raising a club.

**No. 55.—Sinclair's Young Puritan Rocker and Writing Table.**—It will be seen at once, from the engraving of this chair in use, that it is designed for comfort and convenience, and the object aimed at has evidently been fully reached in these very easy, useful, strong, and roomy chairs. They are made by Mr. F. A. Sinclair, Mottville, N. Y. The style we offer, including the Writing Table Attachment, price ($9.25), will be presented for 11 subscribers, at $1.50 each. Freight or expressage from factory to be paid by receiver.



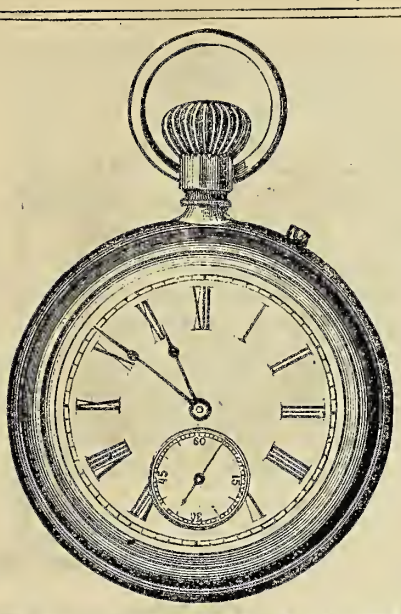
**No. 56.—Clock "La Banniere"** (Banner Clock).—This is an Alarm, Stem Winder, and will run thirty hours. Hight, 9¼ inches. Gilt Stand, front and back protected by close-fitting Caps, to prevent dust from getting in the works. From E. W. Welch Manufacturing Co., 6 Warren St., N. Y. Price, $5.50. *Seven* subscriptions at $1.50 each will secure this. [Or we will supply it for $5.50]. Expressage to be paid by recipient.

**No. 57.—"Unique" Clock.**—Made of enameled metal, gilt engraving, same movements as "La Duchesse." Eight-day time and strike; 5-inch dial: hight, 12 inches. Price, $10. Will be presented for 12 subscriptions, at $1.50 each. Receiver to pay expressage.



**No. 58.—Office Clock and Inkstands.**—This beautiful combination of the useful and ornamental will prove a very acceptable present in many cases. It is 7½ inches in hight, and 8 inches in width. It comprises a handsome silver-plated clock, supported by a gold-plated figure, with two ornamental inkstands, pen-rack, etc. On the dial are indicators of the day of the week and of the month; is a stem-winder, hands set at the back, and a good time-keeper. 57, 58, and 59 are made by the Ansonia Clock Co., 19 and 21 Cliff St., New York. Only 9 subscriptions at $1.50 each are required to get this elegant Premium. [We will send one on receipt of $7.00.] Express to be paid by recipient.

**No. 59.—"La Duchesse" Clock.**—Made of enameled metal, highly finished and embellished with bronze ornaments and gilt trimming. Eight-day time and strike; polished springs; patented arrangement, allowing the hands to be turned backward without injury to striking parts; also patent self-adjusting pendulum; 5-inch dial; hight, 17 inches with figure. Price, $15. This beautiful clock will be supplied by us for 16 subscriptions, at $1.50 each. Receiver to pay expressage.



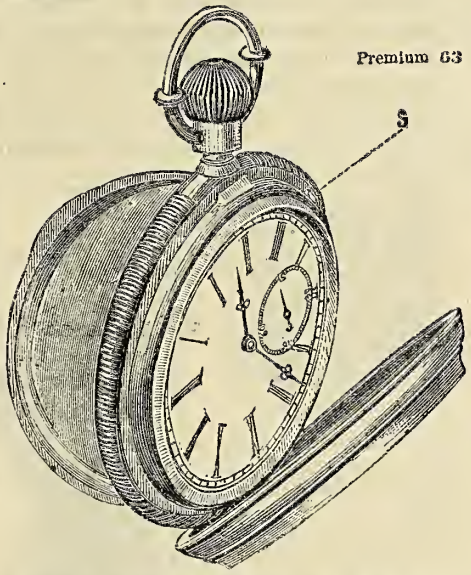
**Nos. 60 to 63.—GOOD WATCHES.**—To get the *Right* Watch (one satisfactory to ourselves), has been the most difficult work in all our Premium collections. The country is flooded with *low-priced* watches—some good, some fair, many worse than worthless—a constant annoyance to the owners. Everybody wants a watch, and most want a *cheap* one. We tried to meet this want the past year, and sent out many hundreds of the best *time-keepers* we could find for $10 each. From all we have heard, we suppose just 99 in every 100 proved *good*. We know from letters received that a large proportion of these gave *great satisfaction*. About one in three hundred was injured in carrying. (An express company smashed one and paid for it.) These were No. **60**, described below. The only objection is the Nickel Case—not a serious one, as 50 cents will put on a new thick plating. After much effort, and by special favor, we are now able to offer the following:

**No. 60.—A GOOD WATCH.** This is a **Stem Winder and Stem Setter,** needing no key or opening to admit dust. Dial clear, with Second Hand (see engraving above). Crystal strong, thick, flat with the *new beveled edges;* Case strong, good looking, heavily nickel-plated, a good resemblance to silver. Weight, 4¼ ounces. It is the best *time-keeper* for a $10 Watch we have ever found. We continue to offer this as a premium, and will present it for only 13 subscribers at $1.50 each, [or supply it for the price, $10]. There are as *good looking* watches sold for $7 to $9—but we have never found another *equally good time-keeper* so low as $10.

**No. 61.—EXTRA SILVER WATCH.**—This is of the same *pattern* as the above, and made by the same Company in Switzerland, but the case is *Coin Silver*, and the works are of extra HIGH GRADE, with **13** *Jewels*, Compensated Balance, etc.—as good a Watch as any $30 or $40 watch we have ever seen. It is good enough for anybody. Face about 1¾ inch in diameter. We offer this Watch with the utmost confidence, that it is one of the *best* and *cheapest* Watches ever supplied for the low price of **$15,** which is so near the *actual cost of making* that we can at best offer it for 20 subscribers at $1.50 each, and do not care to furnish it at this rate, except where such a Watch is specially desired by our friends. [We will supply a few, as we can get them, for the price, $15.]

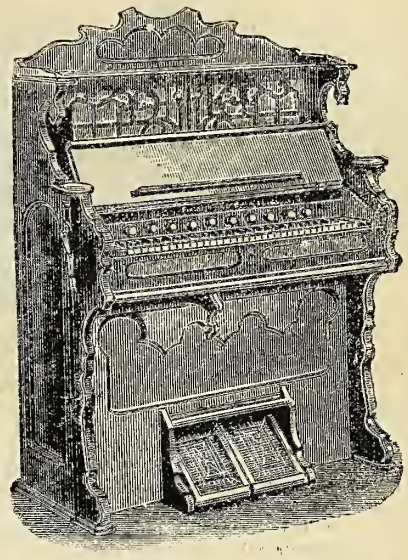
**No. 62.—EXTRA SILVER WATCH,** for BOYS or for MEN who want a smaller Watch. This is every way like No. **61,** EXCEPT that it is of *smaller size*, the face being about 1⅛ inch in diameter. The cost is the same except that the smaller case requires a little less silver. This we *present* for 19 subscribers at $1.50 each. [Or, we will supply it, when we can, for $14.50].

**No. 63.—EXTRA SILVER WATCH, HUNTING CASE.**—(Heavy Coin Silver Case). This is *precisely the same watch every way* as No. **61** above, EXCEPT that it is in "Hunting Case" as shown in engraving. It will be presented for 22 subscribers at $1.50 each [We will supply it, when we can, for the price, $16.]



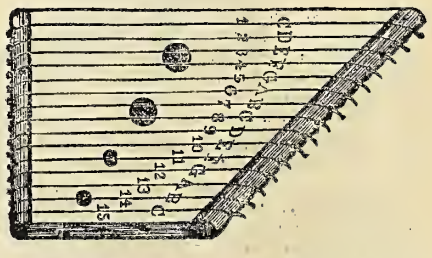
Premium 63

**TAKE NOTICE, about all the above Watches,** (Nos. **60** to **63**). That we can not and do not agree to supply all that may be called for, though we will *try* to do so. They are manufactured with special care, in one of the best establishments in Switzerland, and can not be obtained or made rapidly. We have a dozen tested ones on hand at this writing, and a large lot more ordered, which will come along from time to time hereafter, and they will be delivered as fast as they arrive, in the order in which applications for them come in paid for, either by premium clubs, or in cash. Those desiring to secure any one of these watches at an early day, can send in the *price* now for it, and when he afterwards raises the full premium club required, the price can be deducted from his final remittance. The recipient will pay the expense of expressage.



**No. 68.—"National" Organ.**—The establishment of Messrs. Geo. A. Prince & Co., Buffalo, N. Y., has long been famous for the excellence, durability, and elegance of the organs and melodeons manufactured there. We have had in constant use for *nineteen years* (part of the time in our Sunday School, and part of the time at home), one of Mr. Prince's Large Melodeons, piano case, and it is just as good to-day as ever, and we would not exchange it for any other kind. Mr. Prince has, however, gone on improving the instruments—"approaching greater perfection."—No one can fail to be pleased with these instruments. The "National" Organ, which we offer, is one of their latest and best styles, Price $150, and it is claimed by the makers, that for power, quality of tone, style, finish, and the great variety of combinations, of which it is susceptible, its equal has never been produced before. The organ has two full 5-octave sets of reeds, and the Kent improved *Vox Celeste* Stop. An elegant premium.—Presented for only 138 subscribers, at $1.50 each. Freight from manufactory to be paid by receiver.

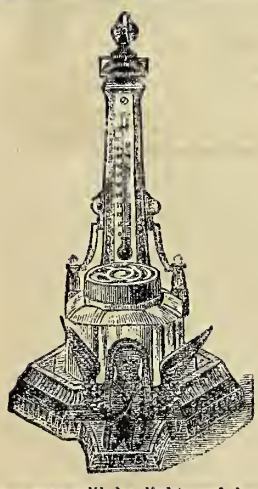
**No. 69.—Accordeon.**—With German Silver ornaments, black moulding, double bellows, with hooks, ten keys, one stop, double reeds, organ or celestial. From Daniel Hess, 33 Maiden Lane, N. Y. Presented for 8 subscriptions at $1.50 each [or we will supply one of them for the price, $6], the recipient to pay express charges.



**No. 70.—Fifteen String Zithern.**—A musical instrument which may be new to many of our readers. It can be played by notes or figures, and tuned like a harp. A sheet containing tunes and instructions how to play, accompanies each instrument; it is packed in a box. From E. G. Selchow & Co., 41 John St., N. Y. Price, $1.25. Two subscriptions at $1.50 each, will secure this, post-paid [or we will send it, post-paid, for $1.25].

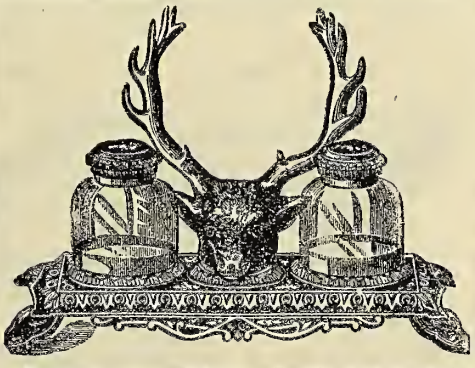
**No. 71.—Banjo.**—Full size, calf-skin, imitation rosewood, eight brass eagle brackets. From same party as No. 69. Price, $5.50. Seven subscriptions at $1.50 each, will secure this [or we will supply it for $5.50.] The recipient to pay express charges in either case.

**No. 72.—Metalaphone.**—This is a Musical Instrument: in ornamented frame, with 22 Notes (3 Octaves), made of Metal, nickel-plated and engraved, and is played by striking the notes with two small mallets, which are indicated in the engraving. From Stern & Lyon, 20 Park Place, N. Y. Two subscriptions at $1.50 each, will secure this [or we will supply it for $1.50]. Expressage to be paid by recipient in either case.



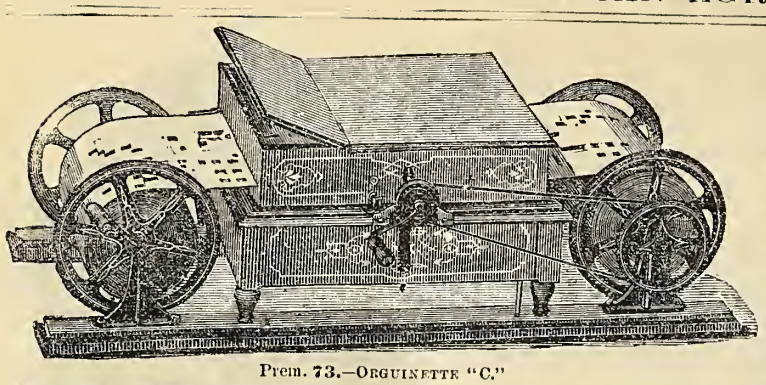
**No. 64.—Ink-Stand.**—Single with Thermometer. Diameter, 5½ inches. Hight, 9¼ inches. From the same firm as No. 70. Price, $1.00. 2 subscriptions at $1.50 each, will secure this [or we will supply it for $1.00]. This is a very fine arrangement for the low price at which it is supplied. It can not be sent by mail. It can be taken at the office, or sent by express anywhere, as it is well packed in a box. The express expense will be light, and is to be paid by recipient.

**No. 65.—Work-Box.**—This is made of finely polished wood, cover inlaid, lined with velvet: contains Scissors, Needle Case, Piercer, Bodkin, Thimble, and has a Mirror in the cover; has Lock and Key. Size, 9½ x6½ inches. From same firm as No. 67. Five subscriptions at $1.50 each, will secure this [or we will supply it for $8.50]. Expressage paid by recipient.



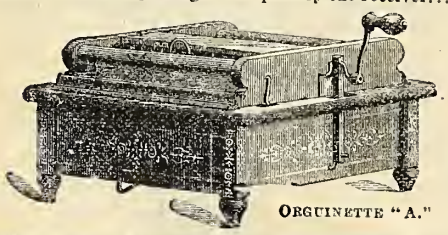
**No. 66.—Ink-Stand.**—Double, with pen-rack; length, 10½ inches; hight, 5½ inches. From the same firm as No. 70. Price, $1.00. Two subscriptions at $1.50 each will secure this [or we will supply it for $1.00]. Express charges to be paid by recipient in either case.

**No. 67.—Girl's Writing-Desk.**—This has a wood frame covered with Leatherette, and lined inside with paper to imitate wood; outside is handsomely decorated on top in silver and gilt. Length, open, 14 inches; width, 10 inches; It has Lock and Key and two Ink-Bottles. From Stern & Lyon, 20 Park Place, N. Y. Three subscriptions at $1.50 each, will secure this [or we supply it for $2.00]. Expressage to be paid by recipient.



Prem. 73.—ORGUINETTE "C."

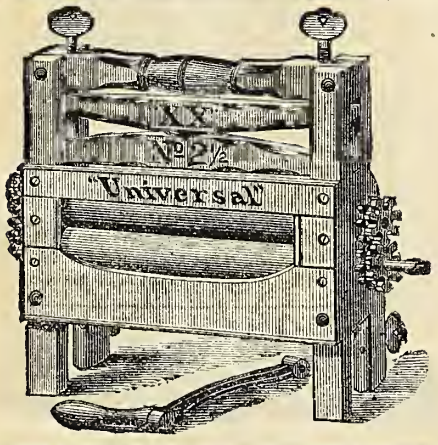
**No. 73.—"The Orguinette."**—A Capital Musical Instrument for the million—for those who have had no time or opportunity to learn to play, yet who desire music in the house—at far less expense, and in far greater variety than is supplied by the Music Box, or Hand-Organ. The *Orguinette* has the usual Parlor-Organ or Melodeon reeds, with a small, but effective wind-bellows, and in sweetness of tone, brilliancy, promptness of action, etc., is quite remarkable for a musical instrument of so moderate a cost. The notes are most ingeniously and yet simply produced by the passage through the instruments of strips of perforated paper, the apertures so arranged as to open the keys and produce just the notes, and length of sound on each, required by the pieces played. These may be church music, lively sounding airs, national, and operatic selections, quadrilles, etc. The prepared perforated paper is sold at low rates (6½ cents per foot), and from the catalogue one may select any amount and variety of tunes desired, and at small cost. Any one desiring further description of the instrument, can send for circulars to the MECHANICAL ORGUINETTE Co., No. 11 East 14th St., New York. We offer two varieties. Premium No. 73, the ORGUINETTE "C" (illustrated in the engraving), has the "Expression Box," giving a variety of pleasing effects, by simply raising and lowering the lid. 14 feet of the perforated music paper go with this. This will be presented for 15 subscribers at $1.50 each. [It will be supplied complete by us, for $14.00], expressage to be paid by the receiver....



ORGUINETTE "A."

**No. 74** is the ORGUINETTE "A," differing from "C" in the omission of the "Expression Box." Price with 14 feet of music paper, $8.00, for which price we will supply it: or we will present it for 10 subscribers at $1.50 each. Expressage paid by recipient in either case.

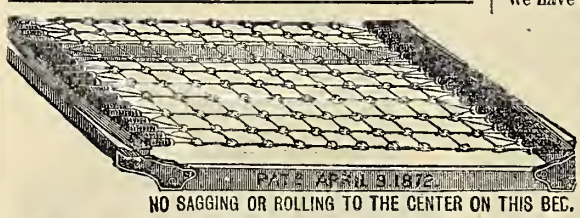
**No. 75.—Universal Clothes Wringer.**—(*See Engraving below.*)—A very *useful, time-saving, strength-saving, clothes-saving* implement, that should be in *every* family. Here is a thing that is of *great* value, "and no mistake about it." It will pay for itself several times a year, in any family. The wringing out of clothes by hand is hard upon the hands, arms, and chest, and the roller will slip, and pull the fibres, and injure the fabric. A multitude of letters of thanks for these Machines, given by us as Premiums, have been received. It is easy to gather at the regular rate of $1.50 each, only 10 subscribers, and this will secure a *present* of one of these very valuable $7.50 Universal Wringers. They are made by the METROPOLITAN WASHING MACHINE Co., and furnished by R. C. BROWNING, 32 Cortlandt St., N. Y. [We will supply one of these valuable machines on receipt of the price, $7.50]. Receiver to pay expressage.




twisting stretches and *breaks* the fibres with *lever* power. With this Wringing Machine, the garments are passed rapidly between elastic rollers, which press the water out better than hand wringing, and as fast as one can pick up the articles. A most important feature of this Universal Clothes Wringer is the peculiar *cog-wheel* arrangement, which makes both rollers turn together, and always keep their place. Without these, the crank-

**No. 76. Excellent $15 Overcoat.**
**No. 77.—Excellent $20 Business Suit.**
**No. 78.—Excellent $30 Dress Suit.**

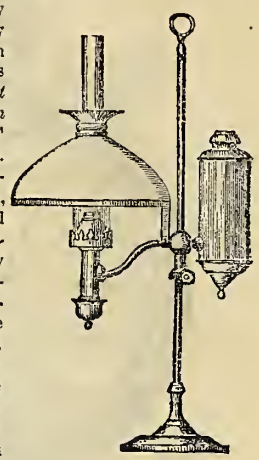
MADE TO ORDER AND WELL MADE.—Here are articles wanted by tens of Thousands. The extensive establishment of JESSUP & Co., 251, 256 Broadway, has long been very widely and favorably known. (Many of the suits now in use by the leading men in the *Agriculturist* Office, came from this establishment, because they have there obtained *good* articles at reasonable figures). This establishment sends samples of fabrics, with prices, all over the country, and full directions, with engravings, enabling any one to furnish all the measurements needed to make up garments, guaranteed to fit. We have made arrangements with Messrs. Jessup & Co., by which we can furnish these good premiums, viz.: No. **76.**—A Good $15.00 Winter Overcoat, will be presented to any one sending only sixteen subscribers at $1.50 each. No. **77.**—A good $20.00 Business Suit, for only twenty subscribers at $1.50 each. No. **78.**—A Good $30.00 Dress Suit (Broadcloth or Diagonal), good enough for a wedding or any occasion, for only thirty subscriptions at $1.50 each. The Garments will be forwarded anywhere by express or otherwise, as desired. Expressage to be paid by receiver. N. B. To those desiring, or entitled to the above garments as premiums, we will mail samples of fabrics *to select from*, with directions for self-measurement, etc., and the garments will be cut and *well made up* in the style desired. Here is an opportunity for many to get good clothes with no expense, except the carriage. A few persons may unite and make up a club of subscribers, and secure a fine suit as a present to a Clergyman, or to any worthy person.



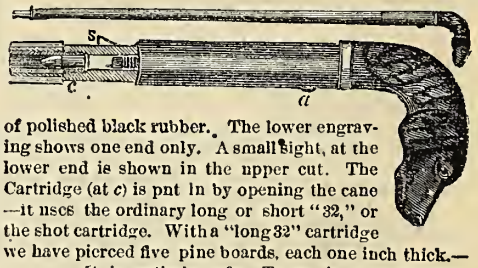

NO SAGGING OR ROLLING TO THE CENTER ON THIS BED.

**No. 79.—The National Wire Mattress.**—Everybody wants a *good* Bed. One who sleeps well, will do more and better work of body and mind, and enjoy better health, and live longer. This premium will help to sleeping comfortably. It is manufactured by the NATIONAL WIRE MATTRESS Co., New Britain, Conn. It will be observed, by reference to the engraving, that the Mattress is made on what the manufacturers claim a mechanical principle; that it never can sag; that it will never rust in any climate; that it can be taken apart and folded up to occupy but little space, and that it is the only one getting its elasticity from wire-tempered Springs. Those who have used these Mattresses, several of whom are among our Editors, pronounce them in every way desirable. To any one sending us only 12 subscriptions, at $1.50 each, we will forward one of these beds. Receiver to pay freight.

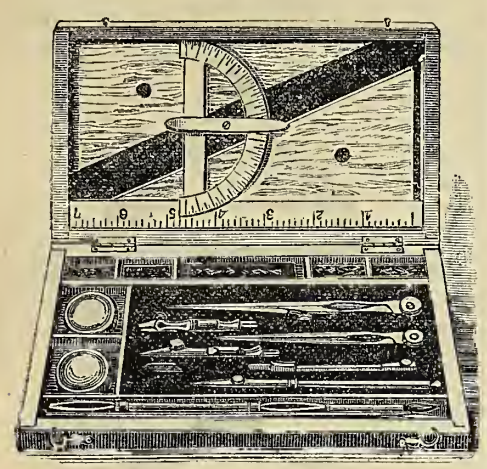
**No. 80.—German Student Lamp.**—This lamp is known the world over for its beauty and *steadiness* of light, its superiority in economy, safety, etc. C. F. A. HINRICHS, of 31 Park Place, New York, has made many valuable Improvements in their construction. He is the Patentee of the "*Saint Germain, or German Study or Office Lamp*," made by C. A. Keelmann. This lamp includes the various latest improvements, such as the Enlarged Fount, shut off at the bottom (a great security against accidents in filling), Improved Chimney-Holder, etc., (None genuine without the name of C. F. A. Hinrichs on the Chimney-Holder). We use these lamps in all rooms in the house (kitchen included), and would exchange them for no other method of lighting yet known to us. The price of the St. Germain German Study Lamp is reduced to $5 for the large size (No. 1), in polished brass, with shade, chimney, and wick, complete, ready for use. We will present one of them to any one sending only 7 subscribers at $1.50 each. The same Lamp in nickel-plating is sold at $6.00. We will present the Nickel-Plated Lamp for only 8 subscribers at $1.50 each. Freight or expressage paid by recipient. (25 cents extra, if to be boxed for sending to a distance.)



**No. 81.—A Cane Gun** (or **Gun Cane**).—This is a remarkably convenient and *effective* weapon, which, when not in use, has all the appearance of a fine ebony, or hard-rubber Cane, and yet it can, in an instant, be changed to a Rifle (or Shot gun) which shoots accurately and to a long distance as a rifle of 32-100 calibre (or 22-100 when preferred). The writer recently carried one many thousand miles, simply tied with an umbrella by means of a rubber strap. It attracted no attention save when explained, and then it excited the admiration of all who saw it. On one occasion a hawk was shot from the top of a tree over 80 feet high, and sundry small birds desired for preserving as specimens, were killed with the shot cartridges—a new device in which 65 No. 9 shot are packed in a peculiar cartridge that holds them together while in the barrel, and prevents their leading the grooving. The upper engraving shows the cane as it ordinarily appears—the head and covering



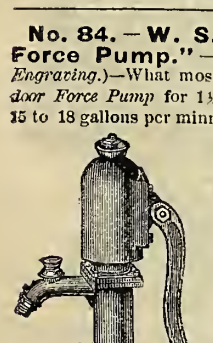

of polished black rubber. The lower engraving shows one end only. A small sight, at the lower end is shown in the upper cut. The Cartridge (at *c*) is put in by opening the cane—it uses the ordinary long or short "32," or the shot cartridge. With a "long 32" cartridge we have pierced five pine boards, each one inch thick.—It is entirely safe. To use it, a quick vigorous pull opens the cane at *c*, the rear sight *s* files up, and the two sights being far apart, pretty accurate range is obtained. Depressing the small trigger (*a*) fires the charge, but only when specially set for firing. A cork or plug in the lower end to keep out dirt, fits the cane for a good walking stick. The 32-100 size weighs 29 ounces; diameter of cane ⅞ths of inch. The 22-100 size weighs 18 ounces. We prefer the larger size, but either size is supplied at the same price ($10). It is thoroughly made by the Remington Works, and is supplied to us by A. ALFORD, 283 Broadway, New York. Ours has been fired some 200 times, or more, and is in perfect order. For lightness as a cane, and for mere target practice, the 32-100 calibre answers; we prefer the 32-100 calibre for most effective shooting. We will present one of either calibre desired, in return for only 12 subscriptions, at $1.50 each. [Or send one on receipt of $10]. Expressage to be paid by recipient. The *ball* cartridges can be obtained anywhere. The *shot* cartridges are a new invention, as yet only made 22-100, 32-100, and 38-100, and are not yet generally obtainable. They cost about 85 cents per box of 50, at retail. We will send one box of these (32-100) for each additional subscriber at $1.50, or send, with the gun, one or more boxes at 50 cents per box, when desired.



**No. 82.—Box of Mathematical Instruments.**—Just the thing for a youth who has a taste for drawing. These Instruments are put up in a neat Mahogany Case, which contains: Two Dividers, one Pen Point, one Pencil Holder, one Extension Bar, one Ruling Pen, one Crayon Holder, one Brass Protractor, one Small Scale, two Wooden Triangles, one Cake India Ink, four Cakes Water Colors, Cups and Brush. We will present this Box of Instruments for 4 subscriptions at $1.50 each. [We will supply one of these for $3.00.] ☞ If to go by mail, send us 15 cents for postage & packing.

**No. 83.—Whitman's Fountain Pump.**—The Fountain Pump is made of brass, handsomely finished, with Sprinkler and Rubber Hose attached. It is durable, and just as represented, and does not rust or dry up. It is novel, the mechanism simple, is useful at all seasons of the year, and particularly valuable as an always ready practical Fire Extinguisher. (*See engraving.*) New Improvements have been made, and the price with Sprinkler and Hose complete reduced from $10.00 to $8.50. Many thousand dollars worth of property have been saved from fire with the help of the Fountain Pump, and Trees, Vines, etc., innumerable, from Insects and Drouth. It is easily carried, (weighing less than four pounds), and can be used by even a child. Manufactured by JOSIAH A. WHITMAN, No. 128 North Main St., Providence, R. I. Only 11 subscriptions at $1.50 each are needed to obtain this Pump. [Or we will supply one for $8.50.] The Carriage to be paid by receiver.

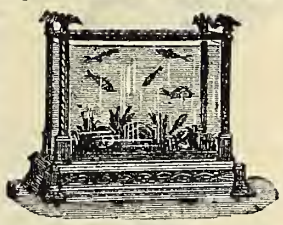
**No. 84.—W. S. Blunt's "Universal Force Pump."**—[Patented July 28, 1876.]—(*See Engraving.*)—What most country families need. An *indoor Force Pump* for 1¼ inch Suction Pipe; capacity 15 to 18 gallons per minute. These pumps are tested to 150 pounds pressure, and will throw water from a hose pipe 50 feet high, and 90 feet horizontally, and have revolving tops, so that they can be made right or left hand. Being operated by a side shaft entering through the air-chamber, there is no *piston rod* to wear out the brass stuffing box as in other pumps. They are among the *most powerful, simple,* and *durable pumps to be had.* The ease with which any part can be *renewed* in case of accident, or *access* had to the interior for repairs, commends them for green-houses, farmers, and stockmen, as well as for *city use.* Send for a descriptive circular to THE NASON MANUFACTURING CO., 71 Beekman St., and 71 Fulton St., New York. We will present you this Pump, for your own use, (or for sale at $12,) if you simply procure us 14 subscribers, at $1.50 each, *which you can readily collect* during a very few evenings or on rainy days. It will well repay the effort.—[We will supply this pump on receipt of the price, $12.00.] Receiver to pay expressage.



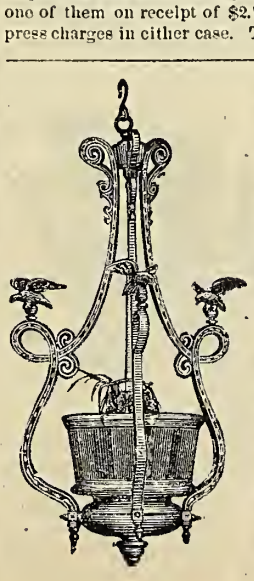
Premium 84
UNIVERSAL FORCE PUMP.

**No. 85.—No. 1 Star Wood Pump.**—There is scarcely a housekeeper in the land who does not want a good yard Pump. The Star Wood Pumps are made by POWELL & DOUGLAS, Waukegan, Ill. These Pumps are for general use, and are recommended for either the stock or the house well. They are well made, neatly painted, and provided with iron spout and desirable bearing, so that one, with proper care, will last a lifetime. We will forward one of the No. 1 Star Wood Pumps, porcelain lined iron plunger cylinder, and tubing, for a 20-ft. well, on the receipt of 19 subscriptions, at $1.50 each. [Or will ship one on receipt of $17.40, as above.] Receiver in either case to pay freight. Additional pipe furnished when wanted, at low rate. Send to Manufacturers for descriptive circular giving particulars.

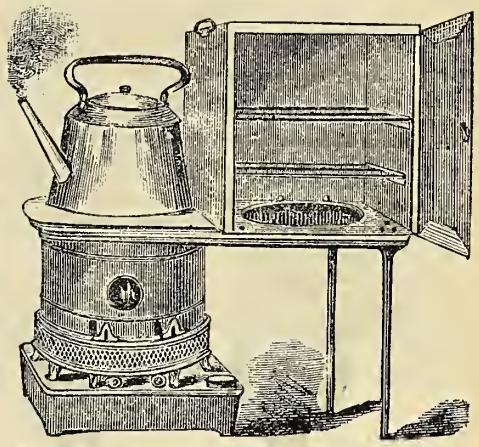
**No. 86.—Aquarium.**—Many homes can be made more cheerful and entertaining by the introduction of little things to please the eye and at the same time afford instruction to the young. All over the country there are those who have abundance of flowers and other ornaments, and who would gladly add representatives of animal life, if they knew where they could get the proper conveniences for keeping the same at a moderate cost. Knowing this fact, we have made arrangements with Messrs. STEPHEN FREEMAN & SON, of Racine, Wisconsin, to offer as one of our Premiums an Aquarium as shown in the cut. This one is designed for a shelf or table, and holds 5¼ gallons of water—large enough for the proper keeping of quite a large number of fish and other marine animals, as well as marine plants. Terra-cotta imitations of castles, rocks, etc., for the ornamentation of the interior, are furnished by the manufacturers, but not included in this offer. Send to Manufacturers as above for full descriptive sheets. This very pretty Premium will be presented for 10 subscriptions at $1.50 each [or we will supply it for $8]. The freight to be paid by the receiver.



**No. 87.—Bracket and Glass Aquarium.**—A very attractive and pleasing room ornament. The whole article, as shown in the engraving, is about 13 inches high, and projects from the wall about 15 inches. It is adapted for rooms and niches of limited space. The Aquarium holds about half a gallon of water, and is designed for small size Gold and other fresh water fish. They are made by STEPHEN FREEMAN & SON, Racine, Wis. We will present one of these on receipt of 4 subscribers at $1.50 each, [or will forward one of them on receipt of $2.75], the receiver to pay express charges in either case. They are sent safely packed.

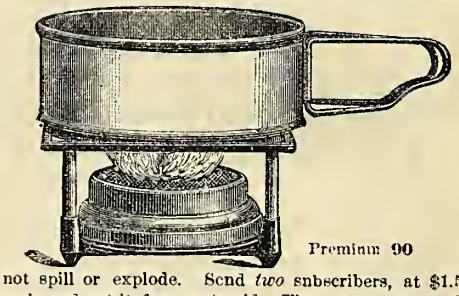


**No. 88.—Hanger for Small Aquarium.**—The accompanying cut represents a very neat Hanger for a small glass Aquarium, made by STEPHEN FREEMAN & SON, Racine, Wis., and designed for small niches, bay windows, and suspension over library and sitting room center tables. It is about 22 inches high, made of iron, handsomely painted and bronzed. A beautiful present to a lady. We will forward one for 3 subscribers, at $1.50 each. [Or will supply one on the receipt of the price, $2.] The receiver to pay express charges.



**No. 89.—Hot-Blast Oil Stove.**—The engraving represents one of Whitney & Hall's Patent Hot-Blast Oil Stoves, made by the WHITNEY MANUFACTURING CO., of 1123 Chestnut street, Philadelphia. The cut represents the stove proper, with extension top and oven. With one of these articles, we are assured that the entire cooking can be done for a small family at more nominal expense, by the use of kerosene oil. Besides the ordinary cooking, it can be used for heating sad-irons, baking, etc., doing the work as well, with very much less heat, than an ordinary cook stove. For 14 subscriptions at $1.50 each, we will furnish a stove, an extension top, large oven, large broiler, and sad-iron heater [or will forward one for $12.75], the receiver to pay the expressage.

**No. 90.—Houchin's Improved Patent Pocket Cook Stove.**—With Gridiron and Boiler (with folding handles) holding nearly one quart, which can be used as a drinking cup. The cut represents the Stove in operation, with the boiler placed upon it, which will boil water in five minutes to make 2 or 3 cups of Tea, Coffee, or Chocolate; to Boil Eggs, Stew Oysters, etc. Pour about two tablespoonsfuls of alcohol through the wire gauze, and light with a match or taper. The Lamp being filled with an indestructible packing will not spill or explode. Send *two* subscribers, at $1.50 each, and get it *free*, post-paid. These stoves are made by MCCOY & COMPANY, 132 Duane Street, New York. —[We will supply and send one, post-paid, for $1.25.]



Premium 90

**No. 91.—Stove, Drinking and Shaving Cups.**—This consists of one Planished Drinking Cup, one Shaving Cup, Cake of Best Shaving Soap, and Soap Box, together with the Stove, making four articles in one. Packed in a box 3¾ inches square. From GEO. N. PIERCE & CO., Buffalo, N. Y. One *new* subscriber at $1.50 will secure this. [Or we supply it for 75c.] ☞ If to go by mail, send us 10 cents for postage & packing.

## Silver-Plated Ware—Important.

Next to *stealing* one's money, there is no greater fraud than that practised by some sellers of so-called silver and gold-*plated* articles. With the aid of an electric battery, a piece of almost any cheap metal put into a solution of silver can be so perfectly coated that nothing but pure silver can be *seen*, yet the coat may not be a thousandth part of the thickness of tissue paper. Pewter or Lead, stamped into good form, can be perfectly

Premium 92

coated with silver, and be *good-looking* silver-plated Teaspoons at a cost of less than *one* cent each! And a vast amount of plated ware *of this character* is palmed off. The articles look well, until used a few times, when the *coating* disappears.—But properly managed, the electric process will put on a coat of pure silver *of any desired thickness*, and if the base metal be good, and the plating *thick* enough, such plated ware is just as good for practical use as if the whole were solid silver, while the cost is far less. Further, if after years of hard service the silver becomes worn off, the articles can be replated as good as new at a moderate expense. We have articles constantly used eight and ten years, and still showing nothing but silver. In buying silver-plated ware, *everything depends upon the honesty of the manufacturer*, and the judgment of the buyer or seller.—We *have taken great care*, in selecting articles to offer to our readers, to get not only those of *superior style*, but those which we *can warrant to be exactly as represented*. Such articles as these are Premiums 92 to 114, described below. Our readers who get any of these, as Premiums, (or by purchase), may rely upon having *first-rate* articles, and as *cheap* as they can be *honestly* made. They can find plenty of similar articles, at less than a fourth the prices named, and that will look as well for a few weeks, or months, if not used, but they will be *very dear*. (We do not compete with the silver-plated articles frequently offered at *apparently* low rates.)—

The Premiums 92 to 114 (excepting 103-5 & 110) are made for us by the MIDDLETOWN PLATE COMPANY, at Middletown, Ct. Mr. JUDD is well acquainted with this Company and its Officers, and has visited the extensive works frequently, observing the process of manufacture, and he confidently recommends their work as being *just what it professes to be*—and every way reliable. A similar commendation applies to Premiums 103, 104, and 105 from the MERIDEN CUTLERY CO., whose work is first-rate.

[☞ *Our Premiums, though fully up to any former year in quality, are this year offered on much more easy terms than ever before, and multitudes can, through the premiums, get much desired articles, as described below.*]

**No. 92.—TEA SET.**—This is a **Splendid Set** of *six* pieces, full size, viz.: a *Coffee Pot*, a *Tea Pot*, a *Water Pot*, a *Sugar Bowl*, a *Cream Cup*, and a *Slop Bowl*—tasteful enough for the most stylish mansion—all beautiful, of uniform design, late pattern, with *raised* and *embossed figure work*. They are none of the common, cheap, silver-washed stuff that will look finely so long as unused, but are the *best triple-plate* on *white metal*. (See notes on plated ware, above.) For all practical purposes, and for ornament, they will be as good as solid silver, for years. This No. 92 (and the others also), afford to a multitude of persons a rare opportunity to get *beautiful* and *useful* articles for home use and for wedding and other gifts. It will be comparatively easy to collect names of subscribers enough to secure one or more of these articles. In a few evenings a gentleman could easily collect 55 subscribers only, at $1.50 each, and secure this splendid $60.00 Tea Set *free*, for his wife or a friend. (It required 70 such subscribers last year). Many a young man can thus get one for his mother, or a sister, or a *friend*. Any lady can get a SET for herself in a brief time. [We will forward one of these elegant sets on receipt of $60.] Receiver to pay expressage.

**No. 93.—Ice (or Water) Pitcher.**—A large, highly Ornamental Article, that will adorn the table, as well as serve a very *useful* purpose, and last many years, with no danger of breakage. Price $13. It is same make, same metal, plating, etc., as No. 92. Sending only 14 subscribers, at $1.50 each, this year, will secure the splendid Pitcher.—Only 18 subscribers, at $1.50 each, will secure the **Pitcher** with a *round* **Salver,** of pattern to correspond, (value $17.50).—For only 28 subscribers we will send the **Pitcher** *and* a large 14-inch **Oblong Salver** (value $28.00), which is large enough to hold the Pitcher and two goblets.—For only 85 subscribers, at $1.50 each, we send **Pitcher, Oblong Salver,** and a *pair* of beautiful **Goblets,** silver without, and *gold-plated* inside, (value $34.75). This *Complete Set* is exceedingly desirable, though the Pitcher alone, or that with Round Tray, or with large Oblong Salver, will answer well for *use* and for *ornament*.—[We will also supply the Pitcher, and any one or all the articles above mentioned, at the prices given for each.] Receiver to pay expressage.

Premium 93

**No. 94.—Syrup Cup with Plate.**—Every well set table needs at times a syrup cup. This elegant cup stands on a fine plate of suitable design. Only 8 subscribers at $1.50 each, will now secure it *free*. [Or, when desired, we will send one on receipt of the price, $6.25.] Receiver to pay expressage.

Premium 94 Premium 95

**No. 95.—Child's Cup.**—(*See Engraving.*)—A beautiful gift for the *Little One*. Triple-plated on the outside, and *gilded* on the inside. It never breaks, and will last for many years—indeed, be a *life-keepsake*. *Obtain only 5 subscribers*, at $1.50 each, and you can secure one of these beautiful cups for your own Child, or a name-sake, or other favorite.—[Or we will forward one on receipt of price, $3.50.] Receiver to pay expressage.

**No. 96.—Butter Cooler.**—This is a really good and useful article, as well as an ornamental one. The pattern is very taking, having been selected from a

Premium 96

large assortment. A very little ice in the holder under the plate will keep butter cool and fresh for a long time on the table, even in the hottest weather. The bright surface reflects off outside warmth, thus keeping the butter cool. Same metal, from same House as No. 92. This fine premium is *presented* to any one who simply collects and forwards us only 8 subscribers, at $1.50 each, easily done.—[Or we will send one to order on receipt of $6.50.] Receiver to pay expressage.

Prem. 97

**No. 97.—Pickle Jar and Fork.**—The jar is of glass, handsomely mounted in silver-plated frame, with fork attached. It is a very ornamental article for the table, as well as useful, and would prove an acceptable present to a young house-keeper. For 7 subscriptions at $1.50 each we will present it. [Or will forward one on receipt of $5.] Receiver to pay expressage.

**Nos. 98, 99.—Cake Baskets.**—Two styles offered, both of *elegant* patterns, very taking, *useful*, and *beautiful* table ornaments—just the thing every one wants. From same makers and same metal as No. 92. No. 98 presented to any one sending only 10 subscribers, and No. 99 to any one sending 12 subscribers, at $1.50 each.—[Or we supply No. 98 for $7.50, or No. 99 for $10.] Receiver to pay expressage.

**Nos. 100 to 102. Casters.**—These are all of *handsome* patterns, richly chased, No. 100 containing *five* cut glass bottles, including mustard, & (the two others *six*, including a Mustard bottle)—useful, necessary, ornamental for every dining table. Same makers, and same metal and plating, as No. 92. Send us only 7 subscribers, at $1.50 each, and get No. 100, or 10 subscribers and get No. 101, or 12 subscribers for No. 102—[Or we will supply No. 100 for $5.25. No. 101 for $7.50, or No. 102 for $10.50.] Receiver to pay expressage.

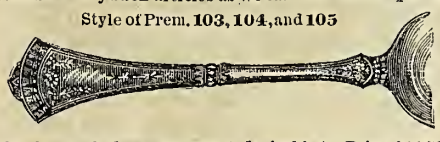
Premium 102

**No. 103.—One Dozen Tea-Spoons.—No. 104.—One Dozen Table-Spoons.**—These are all of the elegant *Crown pattern*, fine metal, **triple plated,** and for beauty of design, and excellence of workmanship, will be found unsurpassed by solid silver. These spoons are far *cheaper* than many others we have found at half the price, and *are well worth canvass-*

*ing for*. They are made by the MERIDEN CUTLERY CO., No. 49 Chambers St., N. Y. City. Nine subscribers sent us at $1.50 each will secure **12** *Tea* Spoons (worth $7.25); sixteen subscribers, at $1.50 each, will secure **12** *Table* Spoons (value $14.50) [We will supply the Tea Spoons for $7.25 per dozen, and the Table Spoons for $14.50; or a set of six for half these prices.] Receiver to pay expressage. ☞ We will supply a set of *half* a dozen Tea-spoons for 5 subscribers, or a set of *half* a dozen Table-spoons for 9 subscribers, at $1.50 each.

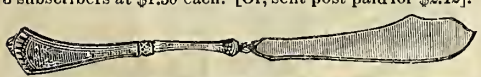
**No. 105.—One Dozen Table-Forks.**—*The same description and remarks apply to these as to No.* 104, and they are from the same makers. (We select as Premiums only such articles as we can *warrant* in quality

Style of Prem. **103, 104,** and **105**



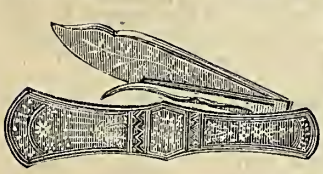
and price, and these the most desirable.) Price $14.50. Presented *free* to any one sending only 16 subscribers at $1.50 each, or a set of six for 9 subscribers.—[We will supply one dozen for $14.50, or a set of six for $7.25.] Receiver to pay expressage, if not delivered at this office.

**No. 106.—Sugar Tongs.**—Beautiful, Crown Pattern, Extra Plate. Price, $2.12. Presented post-paid for 3 subscribers at $1.50 each. [Or, sent post-paid for $2.12].

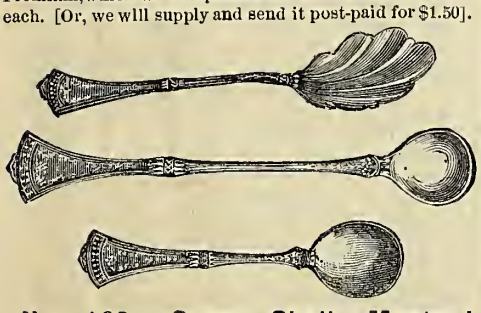


**No. 107.—Butter Knife.**—Beautiful form, Crown Pattern. Price, $1.25, and worth it, as it is heavily Triple-Plated on white metal, and made for long service. We could supply as good-looking knives, called "extra plate," for 50 to 75 cents, but this is worth a dozen of them, and we prefer it at the extra price. (This remark applies to all the articles here offered). We send this post-paid, for two subscribers at $1.50 each, [or, for $1.25].

**No. 108.—Fruit Knife and Nut-Pick,** combined in one handle, both opening to spring back. Blade finely chased. Handle, Crown Pattern. Heavily Plated. This is a fine



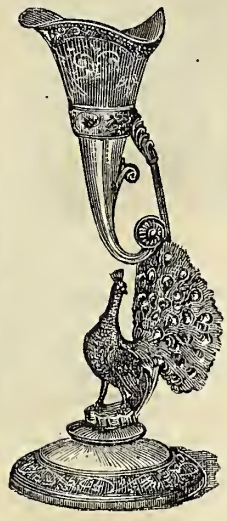
Premium, which we will present for 2 subscribers at $1.50 each. [Or, we will supply and send it post-paid for $1.50].



**No. 109.—Sugar Shell—Mustard Spoon—Salt Spoon.**—All beautiful; Crown Pattern, Double-Plated. All *Three* presented for three subscribers at $1.50 each, and sent post-paid. [Or, will be sent post-paid for $2.00]. This, and the three Premiums above are supplied by the MIDDLETOWN (Ct.), PLATE CO.

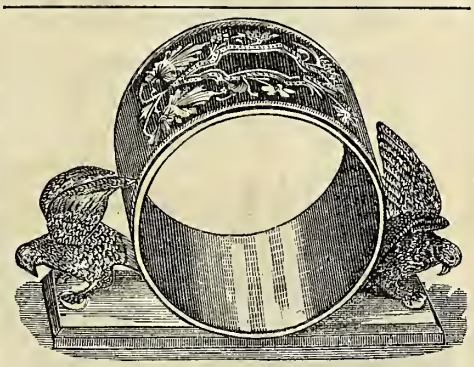
**No. 110.—Nut Picks and Cracker.**—One-half dozen Nut Picks and a Nut Cracker, put up in a handsome case. These articles are unique in appearance, and substantial in material and construction, being made of steel throughout, chased with handsome designs, and heavily nickel-plated. By same manufacturer as No. 50. For three subscriptions, at $1.50 each, we will present this set and case. [Or we will supply them for $2.25.] ☞ If to go by mail, send us 15 cents for postage & packing.

**No. 111—Flower Vase.**—A most beautiful Peacock Pattern, elegantly chased, heavily triple plated in silver without, and gold within so that it will not tarnish by contact with plants in water. Hight, nine inches. We selected this as the most pleasing among a large assortment, from different makers. This and No. 112 are supplied to us by the MIDDLETOWN PLATE CO. We *present* it for 8 subscriptions at $1.50 each, [or, we will supply it for $6.] Expressage to be paid by recipient.



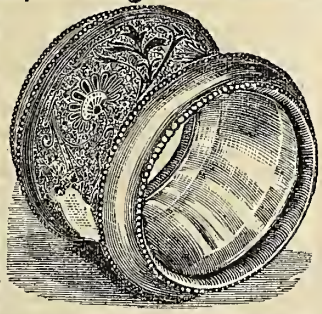
**No. 112.—Card Receiver.**—Elegantly chased, Deer Pattern. The Receiver is a large dishing silver-leaf, nine inches long, five inches wide. We selected it from many forms as the most beautiful for the price ($6). We will present

it for Eight subscriptions at $1.50 each, [or supply it for the price, $6.00.] Receiver to pay the expressage.



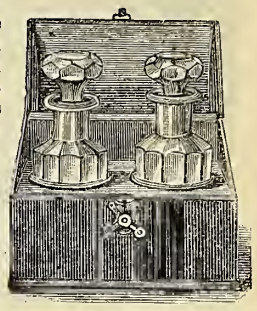
**No. 113.—Napkin Ring.**—On a Base; Dove pattern; a very fine one for the price, $1. Triple plated. Presented post-paid for two subscriptions at $1.50 each.

**No. 114.—Napkin Ring.**—A new pattern, of latest style. The form is shown in the engraving. Heavily plated.—We will present this, post-paid, to any actual subscriber who will procure and forward one *new* subscriber at $1.50, [or we will send it post-paid for 75 cents.] Both of these fine Napkin Rings are supplied to us by the MIDDLETOWN PLATE CO.

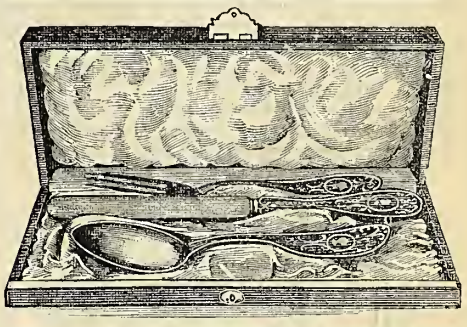


**No. 115.—Lady's Portfolio.**—Made of canvas and bound with leather. It contains compartments for paper, envelopes, etc., and has eight large sheets of blotting paper. From same firm as No. 135. Price $1.50. Two subscriptions at $1.50 each will secure this post-paid [or we will send one of them post-paid for $1.50.]

**No. 116.—Perfume Case.**—Made of Rosewood, *inlaid* with other wood, and gilt, lined with velvet, and contains two Ornamented Cut-glass Bottles, with Lock and Key. From same firm as No. 72. For seven subscriptions, at $1.50 each, we will present this set complete [or we will supply it for $5]. Expressage to be paid by the recipient in either case.

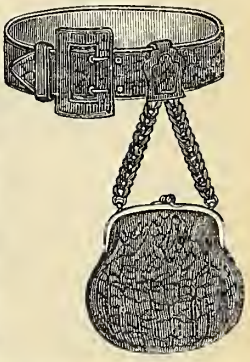


**No. 117.—Perfumery Case.**—This is made of Spanish Morocco, and contains two glass Perfume Bottles, very neat, and suitable for a lady's toilet. From same party as No. 148. Three subscriptions at $1.50 each, will secure this Perfumery Case [or we will supply it for $2.00], expressage to be paid by recipient in either case.

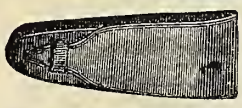


**No. 118.—Child's Set: Knife, Fork, and Spoon.**—This is Standard Silver Plated, white metal base, medallion pattern, in satin-lined morocco case; *an elegant present*. Supplied by the MERIDEN CUTLERY CO. *Four* subscriptions at $1.50 each will secure it *free*. [Or we will send a set on receipt of the regular price, $3.00.] Receiver to pay express charges.

**No. 119.—Lady's Belt and Handkerchief Bag.**—This is made of Leather, and is a very neat and useful article. We will furnish it either in Black, Brown, Red, or Tan. In ordering, state the color desired. From SPELLMAN BROS., 355 and 357 Broadway, N. Y. Price, $1.25. Two subscriptions, at $1.50 each, will secure this, post-paid. [Or we will send it, post-paid, on receipt of $1.25.]

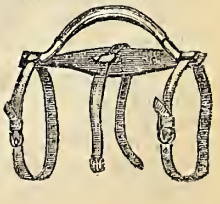


**No. 120.—Case of Scissors.**—The Case is of morocco, handsomely gotten up, and lined with velvet and satin, containing *three first quality scissors*, crocus finish, length 4, 5, and 5½ inches, respectively; a very pretty and useful Premium. Made by the UNITED



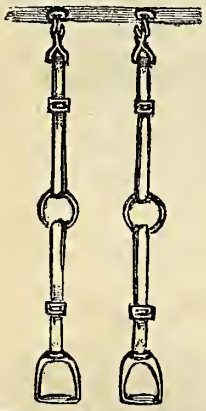
STATES STEEL SHEAR COMPANY, West Meriden, Ct., whose manufactures stand deservedly very high in the market. Furnished to us by the MERIDEN CUTLERY CO., 49 Chambers street, New York. Ladies can get this premium *free*, forwarded post-paid by mail, by sending a club of Six subscribers, at $1.50 each.—[Or we will send this set, pre-paid, on receipt of the price, $4.00.]

**No. 121.—Shawl-Strap.**—This has three straps, made of colored leather, with nickel-plated metal handle; length of straps, 38 inches. From PECK & SNYDER, 124 Nassau St., N. Y. Price, $1.00. Two subscriptions at $1.50 each, will secure this post-paid [or, we will supply and send it post-paid for $1.00].

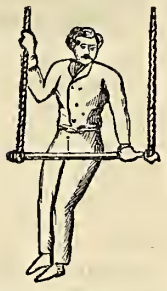


**No. 122.—The Travers' Patent Hammock.**—Tbis is made of strong Twine, Brass Mounted, Cardinal Binding, and is very dnrable. From J. P. Travers & Son, 46 Beekman St., N. Y. Price, $3.00. We will present this for four snbscriptions at $1.50 eacb. [Or we will supply it for $3.00]. Receiver to pay carriage. ☞ If to go by mail, send us 40 cents for postage & packing.

**No. 123.—Hammock.**—Made of colored twines; strong, durable, and useful. From same firm as No. 122. We will presen this for 2 subscriptions at $1.50 each. [Or we will supply it on receipt of $1.50.] ☞ If to go by mail, send us 24 cents for postage & packing.

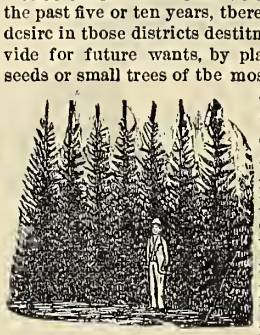


For Young and Old. Strong enough for the Largest Man.



**No. 124.—Bacon's Home Gymnasium.**—The straps are made of strong linen, colored; the rings are of bent wood, about six inches in diameter. The apparatus is supported by two strong screw-hooks in tbe ceiling; it can also be used out of doors by erecting a frame-work, sucb as is used for awnings. Tbe rings and stirrups can be raised or lowered to any bight, the stirrnp-straps and rings removed for the insertion of trapeze bar. The Swing consists of a seat, which can be constructed to fit into tbe Stirrups. From Peck & Snyder, 124 Nassau St., N. Y. Presented for 6 subscriptions at $1.50 eacb, [or, we will supply it for tbe price, $5.00]. Tbe expressage to be paid by tbe recipient.

**No. 125.—Choice Garden, Flower, and Agricultural Seeds.**—We have made an arrangement with Messrs. D. M. Ferry & Co., Detroit, Micbigan, wbich enables us to furnish as premiums, Seeds in almost endless variety, and they will be sent *post-paid* anywhere in the United Statcs or British America, and to any other part of the world on rceeipt of two cents per packet extra, for extra postage. This firm, establisbed in 1856, stands in tbe front rank of seed-growers in the United States and in the world. They exercise tbe utmost care in growing and preparing their seeds for market; bence tbeir seeds seldom fail. Those who desire seed Premiums can rely on baving tbe very fresbest and and best grown in every instance. The seeds are put up in packets, witb full directions how and when to plant, and on tbe packet is a lithograpb *in colors* of tbe flower or fruit the seeds contained therein will produce. Onr lady friends will certainly appreciate tbis opportunity to obtain choice flower and garden seeds of different varieties. Persons can send their subscriptions and then secure their premiums at any time, by an order from us, whicb will be faithfully honored by D. M. Ferry & Co., any time before July 1st, 1880. All entitled to one of these Premiums, can send a postal to D. M. Ferry & Co., and receive *free* tbeir large and beautiful 150-page Illustrated Catalogue, containing a full description and price-list of Garden, Flower, and Agricultural Seeds of every variety, and from this select any seeds desired. For *one* new subscription at $1.50, we will present seeds to tbe amount of 75 cents, as per price-list in D. M. Ferry & Co.'s catalogue. For *two* subscriptions at $1.50 eacb, we will present seeds to the amount of $1.50. For *three* subscriptions at $1.50 each, we will present seeds as above, to tbe amount of $2.25. For *four* subscriptions at $1.50 eacb, we will present seeds as above, to the amount of $3. For *five* subscriptions at $1.50 eacb, we will present seeds as above, to the amount of $4, and we will *add* $1 worth of seeds for each *additional* subscription (above 5), in one club, at $1.50 each—all seeds sent post-postpaid, as first stated above, wben desired. We will also supply any of tbe seeds named at catalogue prices, and send them post-paid. [These preminms are for seeds in packets only, and not for seeds sold by weigbt or measure.



**Nos. 126 to 128.—Beautiful Flower Bulbs,** delivered free at your post office. Tbese three Premiums are put up for us by Messrs. B. K. Bliss & Sons, 34 Barclay St., New York, whose Horticultural establishment and wbose reputation are among the very best in tbe country, and too well known to need special mention by us here. Tbe bulbs in each assortment are selected by tbem and our friends can rely upon getting them as represented. For *two* subscribers at $1.50 each, we will send post-paid, Preminm No. 126, whicb comprises bulbs as follows: 3 Hyacintbs; 12 Tulips; 12 Crocuses; 6 Narcissnses [or, we will send the package, post-paid, for $1.00].

For *four* snbscribers at $1.50 each, we will send post-paid, Premium No. 127, comprising 6 Hyacintbs; 20 Tulips, donble and single; 25 Crocuses; 12 Narcissuses; 3 Lilies; eacb of 3 Varieties; 12 Snowdrops [or, we will send tbe package, post-paid, for $3.00].

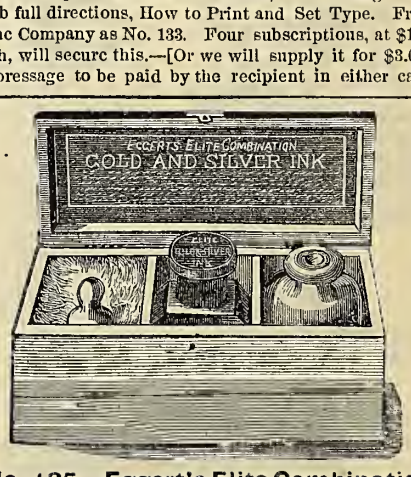
For *seven* subscribers at $1.50 each, we will send, post-paid, Premium No. 128, comprising 12 Hyacintbs; 25 Tulips; 50 Crocuses; 2 Polyanthns Narcissuses; 6 Double Narcissuses; 6 Lilles, distinct varieties; 6 Jonquils [or, we send the package, post-paid, for $5.00]. All the bulbs are assorted, and of very desirable varieties.

**No. 129.—Forest Trees by Mail.**—During the past five or ten years, tbere has been a commendable desire in tbose districts destitnte of forest trees to provide for future wants, by planting eacb season some seeds or small trees of tbe most desirable kinds. In order to encourage sucb an enterprise in every section of tbe country destitute of timber, we have arranged with Messrs. Rob't. Douglas & Sons, of Waukegan, Ill., (wbo have been engaged for more tban tbirty years in planting and raising forest trees,) to offer the following parcels of trees, that can be transported *by mail*, as premiums to subscribers to the *American Agriculturist*. We will forward *post-paid* to any address, any *one* of tbe 18 parcels named below, on receipt of *two* subscriptions at $1.50 each, or will forward any one of tbe parcels post-paid for $1. Parcel, (No. 1.)—100 European Larcb, from 8 to 10 incbes in hight; (No. 2.)—75 ditto, 12 to 18 inches; (No. 3.)—100 White Ash, 10 to 12 inches; (No. 4.)—100 Hardy Catalpa, 10 to 12 inches; No. 5.)—50 Black Cherry, 12 inches, transplanted; (No. 6)—100 Scotcb Pine, 4 to 6 inches; (No. 7.)—100 Ailantbus, 10 to 12 incbes; (No. 8.)—100 European Alder, 1 year old; (No. 9.)—50 Hickory Elm (Ulmus racemosa), 1 year old. *For Hedges and Ornamental Planting.* (No. 10.)—100 Red Maple, 10 to 12 incbes: (No. 11.)—100 Norway Spruce, 6 to 9 incbes; (No. 12.)—50 White Spruce, 6 to 9 incbes; (No. 13.)—100 American Arbor Vitæ 6 inches; (No. 14.)—25 Heavy-wooded Pines, 4 to 6 inches; (No. 15.)—50 Tulip Trees, 6 inches, transplanted; (No. 16.)—50 Balsam Fir, 6 inches; (No. 17.)—50 Red Cedar, 6 to 9 inches; (No. 18.)—50 Hemlock Spruce, 6 to 9 inches. Tbese trees will be securely packed, and *sent free by mail*, at the proper planting season. Messrs. Douglas & Sons have had great success in sending trees by mail.

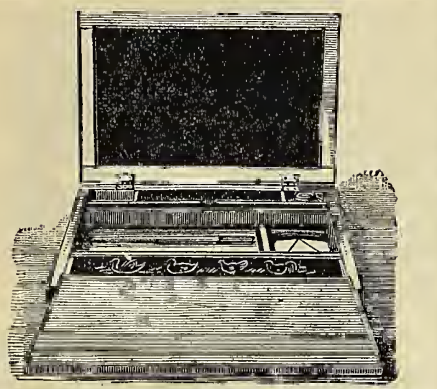
**Nos. 130-2.—Hardy Perennial Plants.**—*Flowers that everybody wants.* Bedding plants—those planted in masses for tbe color effects of their flowers and foliage—are almost all tender green-house plants, which must be renewed each spring. This is too expensive in both money and time. Tbe plants best suited to farm and country gardens, are tbe Hardy Perennials, wbich endnre tbe winter, and eacb year increase in strengtb and beauty. Among tbese are most of tbe "old-fashioned flowers"—neglected, and almost driven out of cultivation by tbe newer style of gardening. Messrs. Woolson & Co., Passaic, N. J., devote themselves exclusively to tbe cultivation of *Hardy Herbaceous Perennials*, wbicb comprise not only the "old-fasbioned plants," but many cboice and brilliant flowers of recent introduction. Send tbem your address, by postal card, stating tbat you desire tbeir catalogue for our Premium list, and it will come free. Tbis catalogue contains 80 pages, describing these plants, with full directions for their cultivation. No. **130.**—For 4 subscriptions at $1.50 each, we will supply tbese plants to tbe amount of $3.00, at catalogue prices. No. **131.**—For 7 subscriptions at $1.50 each, we will supply plants from their catalogue to tbe amount of $5. No. **132.**—For 12 subscriptions at $1.50 each, we will supply plants to tbe amonnt of $10. All the above plants, which are mailable, as noted in tbe Catalogue, will go post-paid. Tbose which are too large to mail will be sent by express; receiver to pay carriage.

**No. 133.—Victor Combination Linen Marker.**—Each box contains a Marker, Type Rack, and complete font of Type, with Tweezers for picking up the type, Ink Pad, and a bottle of superior Indelible Ink. The marking for an entire family may be done with the same instrument, tbe type being movable. From The Acme Manufacturing Co., 31 Park Row, N. Y. Price, $1.00. Two subscriptions, at $1.50 each, will secure this, delivery paid by us. [Or we will deliver it for $1.00.]

**No. 134.—Bonanza Printing Press.**—The Press is made of Malleable Iron, japanned in black, ornamented witb red and gold stripes. The outfit consists of Press, one Brass Composing Pallet, one two-inch Composition Roller, one box Wade's Best Card Ink, one set Spacing Regelets, one Pack White Bristol Cards, and a full 2A 3a font of Fancy Card Type, including Spaces and Quads, whicb will print a name or one line of type. Tbe whole packed in a wooden box, with sliding cover, witb full directions, How to Print and Set Type. From same Company as No. 133. Four subscriptions, at $1.50 each, will secure this.—[Or we will supply it for $3.00.] Expressage to be paid by the recipient in either case.

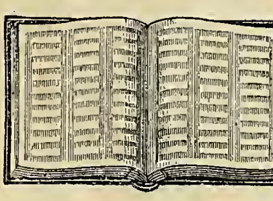



**No. 135.—Eggert's Elite Combination Ink.**—A neat box, containing a bottle of Ink and three boxes of Powders. The ink is used as ordinary ink, and the powder of the color required is then applied with the powder-puff, which comes with the box, and the writing appears either as gold, silver, or copper. From Willy Wallach, 36 Park Row, New York. Presented for one subscription, at $1.50.—[Or we will supply it for 75 cents.] ☞ If to go by Mail, send us 10 cents for postage & packing



**No. 136. — Combination Drawing-Slate and Writing-Desk.**—Contains six drawing copies, paper and envelopes, ink-bottle, pen-holder, lead pencil, slate pencil, and rubber. From same firm as No. 135. Price, $1.50. For two subscriptions at $1.50 each, we will present this [or we will supply it for $1.50]. Expressage in either case to be paid by receiver.

**Nos. 137 to 140.—Mark Twain Scrap Books.**—Almost everybody can find good use for a Scrap Book, and the collections made in one often become of great interest and value to the owner. We have made arrangements with Messrs. DANIEL SLOTE & Co., 119 William St., New York, to supply the well known and highly approved Mark Twain Scrap Books. It is often found that, paste or mucilage not being at hand when wanted, the plain page Scrap Book is of no service whatever. With a Mark Twain Scrap Book no such difficulty occurs. In all the books, the gummed columns are arranged for either short or long clippings. A clipping the length of a column may be secured by slightly moistening the upright lines, and for short extracts the cross lines may be used. The gummed lines generally serve as guides for placing the scraps.



No. 137.—MARK TWAIN SCRAP BOOK, 80 pages; size, 8½×11 inches; full cloth binding. This will be presented by us, post-paid, for 2 subscribers, at $1.50 each. [Or we will supply one, and send it post-paid, for $1.45.]

No. 138.—With 76 pages; size, 9×11¾ inches; full cloth. We present it for 3 subscriptions, at $1.50 each. [Or we will supply one, and send it post-paid, for $1.85.]

No. 139.—With 100 pages; 9×11¾ inches; cloth and gold binding; fancy stamp. Will be presented by us for 3 subscriptions, at $1.50 each. [Or we will supply one for $2.] *Expressage in either case to be paid by receiver.*

No. 140.—With 150 pages; 9×11¾ inches; cloth and gold binding; fancy stamp. Will be presented by us for 4 subscriptions, at $1.50 each. [Or we will supply one for $2.75.] *Expressage in either case to be paid by receiver.*

These and the Art Scrap Books and Plant Books which follow, are beautiful and useful for Holiday Presents.

**Nos. 141-2-3.—Art Scrap Books.**—Patent Back, Adhesive Page. Admirably adapted for the preservation of Scrap Pictures, Unmounted Photographs, Chromos, and Pictures of any description. The whole page is gummed with a patent preparation, imperceptible to the eye, but by means of which any article may be pasted in, leaving the uncovered portion of the page in its natural tint. They are supplied to us by Messrs. DANIEL SLOTE & Co., 119 William St., New York City.

No. 141. — 76 pages, 6×8½ inches. Sent post-paid by us for 2 subscriptions at $1.50 each [or for $1.15].

No. 142, with 76 pages, 8¼×11 inches. Sent by us post-paid for 3 subscriptions at $1.50 each [or for $2.30].

No. 143, with 100 pages, 10¼×13 inches. Supplied for 4 subscriptions at $1.50 each [or for $3.00]; *but for this style expressage must be paid by Receiver.* All of these, and especially the last two, are elegant presents.

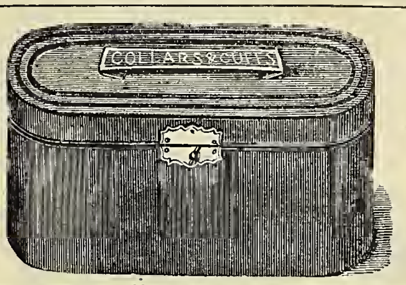
**Nos. 144-7.—American Plant Books.**—We have made arrangements with Messrs. DANIEL SLOTE & Co., of this City, for the supply of these elegant premiums. Always ready, they do away with the necessity for preparing paste, sticky fingers, etc., in the same degree in which Mark Twain's celebrated Scrap Book has relieved the collectors of printed and pictorial matter. The series consists of four sizes, each provided with a wallet or pocket, containing a supply of gummed paper, always ready for use in any climate or season.

**No. 144.—American Plant Book.**—For Forest Leaves, with descriptive page. Size 6½×8½ inches, 56 leaves; binding, cloth and gold. Sent post-paid for 2 subscriptions at $1.50 each [or for $1.15].

**No. 145.—American Plant Book.**—School edition, with Index and Analysis. Size 8¾×11¼ inches, 64 leaves, full cloth, stamped. Sent post-paid for 3 subscriptions at $1.50 each. [Or sent postpaid for $1.80.]

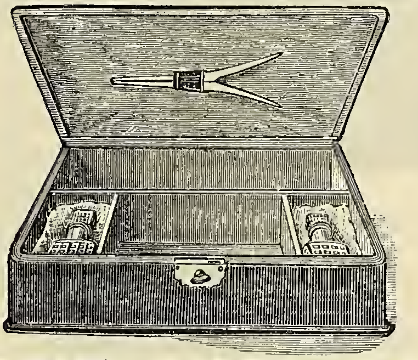
**No. 146. — American Plant Book.** — Amateur's edition, with descriptive page. Size 8¾×11¼ inches, 64 leaves, extra cloth and gold. This sent post-paid for 3 subscriptions at $1.50 each. [Or for $2.00.]

**No. 147.—American Plant Book.**—Student's edition, with Index and Analysis. Size 10×12¾ inches, 80 leaves, extra cloth and gold. For 4 subscriptions at $1.50 each. [Or supplied for $3.25.] Too large for mailing: Receiver in either case to pay expressage.



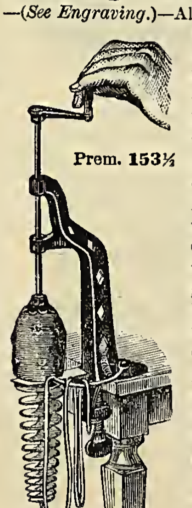

**No. 148.—Collar and Cuff-Box Combined.**—This is made of sheepskin, dyed red, paper lined, and divided into compartments, with nickel-plated fastening. Length 9½ inches; depth, 5½ inches. From ERNEST SCHEEL, 40 Warren St., N. Y. Two subscriptions at $1.50 each, secure this [or we supply it for $1.50]. ☞ If to go by mail, send us 15 cents for postage & packing.

**No. 149. — Handkerchief and Glove Box Combined.**—This is made of sheepskin, dyed red, Silician lined, with two Perfume Bottles and Glove Stretcher; nickel-plated fastening, 11½ × 9½ inches.

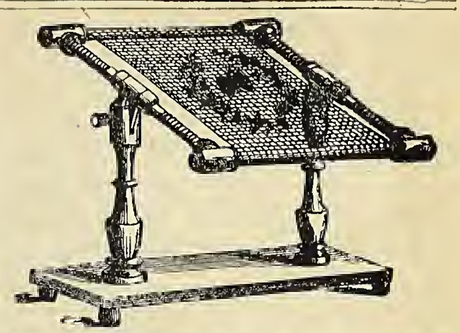


From same party as No. 148. Four subscriptions at $1.50 each will secure this [or we will supply it for $3.00]. The expressage to be paid by receiver, in either case.

**No. 150.—Turn-table Apple Parer, Improved.—No. 151. Climax Apple Corer and Slicer.—No. 152. Family Cherry Stoner.—No. 153. Bay State Apple Paring and Slicing Machine.—No. 153½. "Saratoga" Potato Peeler and Slicer.**—(*See Engraving.*)—All the above machines are most useful in every household where apples, cherries, and potatoes are to be cared for. Manufactured by the GOODELL Co., Antrim, N. H. We have never seen the work for which these machines were contrived, more rapidly or better done, than *they* will do it. The Apples are pared, cored, and sliced with the greatest facility, and the Cherries are readily relieved of their stones, leaving the fruit in good shape. The "Bay State Parer and Slicer" has a new attachment to the Knife Head which cuts the Apple into slices, and places them at one side in a dish on the table. The "Saratoga" slices and peels the potato at one operation, and is a very ingenious and useful contrivance. ☞ Only *two* subscribers, at $1.50 each, are required to get any one of the above, except No. 153, which requires *three* subscribers. For *seven* subscribers at $1.50 each, we present the *whole* (5). [Or we will supply any one of them for $1.00, except No. 153, which is $1.50, Receiver to pay expressage.

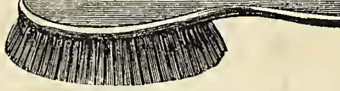


Prem. 153½



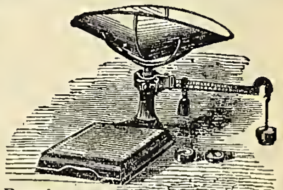
**No. 154.—Embroidery Frame.**—(With the Embroidery Frame is also suitable canvas and 3 Design Books.) It is made of cherry wood, highly polished. The Frame is in size, 9x10 inches. The Canvas on which the embroidery is to be done, is first fastened to the frame, as seen in the cut, and then, by turning the screws of the Frame, the Canvas is made tight, so that designs can be worked most beautifully, and with great ease and rapidity. Sent *free* and post-paid for 2 subscribers at $1.50 each; [or we will supply it post-paid for $1.00.]

**No. 155.—Celluloid Brush and Comb.**—These are made of white Celluloid, Brush of white bristles; light, strong, and durable; very handsome; hardly distinguishable from pure white ivory. Price, $4.75. Only 6 subscriptions, at $1.50 each, secures



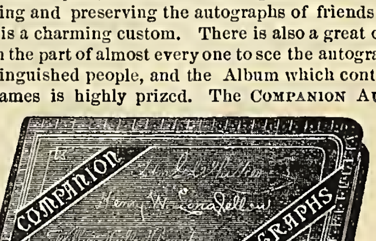
these. [Or we will supply them on receipt of $4.75.] ☞ If to go by Mail, sent us 10 cents for postage & packing.

**No. 156. — Family Scales.** — These scales, combining the advantages of counter and platform scales, are peculiarly adapted to household purposes. (*See Engraving.*) They weigh from ½ ounce up to 240 lbs. They have a scoop, or pan, for weighing flour, sugar, or other house stores, and a *platform* for heavier articles, and are just such an apparatus as is needed for in-door or out-door use, occupying less than 2 feet square. These scales are manufactured by the well-known FAIRBANKS & Co., No. 311 Broadway, New York, whose weighing apparatus has long ranked as the *standard* in all parts of the country. Send to them for circulars, if desired. Only 15 subscribers, at $1.50 each, will secure these fine Scales. — [We will also supply these scales on receipt of the price, $14.00.] Receiver to pay the freight.



Premium 156

**No. 157.—Companion Autograph Album.**—It has embossed gilt covers, round corners, and gilt edges. *Fac-simile* Autographs of Whittier, Longfellow, and Bryant, are embossed in gilt on the cover. Collecting and preserving the autographs of friends and others is a charming custom. There is also a great curiosity on the part of almost every one to see the autographs of distinguished people, and the Album which contains such names is highly prized. The COMPANION AUTOGRAPH ALBUM is one of the most attractive and valuable ever offered to the public. **Besides** the ordinary blank pages for collecting autographs, a new feature of great value is added. *Over thirty* of its 125 pages contain *fac-simile* autographs of distinguished poets, historians, statesmen, journalists, essayists, and novelists. **In addition,** in the hand-writing of the authors, are reproduced stanzas from several famous poems. These have been taken, in most cases, directly from the *original manuscript*, which adds great value to the collection. We will present it, and send it post-paid for 2 subscribers at $1.50 each; [or we will supply it post-paid for $1.00].



**No. 158.—Packard's Business College, New York.**—Tuition for *one term* ($50); *two terms* ($90); and *one year* ($170)—transferrable. The representative Business College of the Country, and the most thorough and efficient school of the kind in the world. This School is under the personal supervision of Mr. S. S. PACKARD, its founder, who is the author of the Bryant & Stratton Bookkeeping Series, "Packard's Complete Course of Business Training," and other popular text books, and who has embodied in his course of study the results of twenty-five years close experience. Circulars containing full information can be had on application at this office. For 50 subscribers at $1.50 each, we will present a tuition receipt for one term of three months, and for a longer term in same proportion.

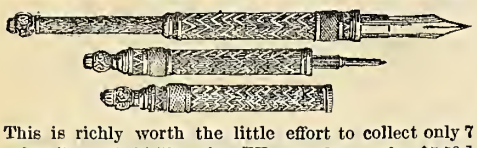
**No. 159.—Patent Magic Bell Head Pencil.**—This is a very pretty and convenient gold-plated Pocket Pencil, which is extended or closed by pulling or pressing the head. This premium and the seven which follow, are from the well known manufacturers, LUDDEN & DOW, 27 John St., New York. Mr. Ludden has been in the business 38 years, and we know and can highly commend his work. For only 2 subscribers sent us at $1.50 a year we will present one and send it post-paid, [or we will send one, post-paid, for $1.50.]

**No. 160.—Magic Charm Pencils.**—These are gold-plated and very beautiful. We offer two kinds, the smaller, an exceedingly tasteful thing for ladies, and a larger style for gentlemen. Each style has

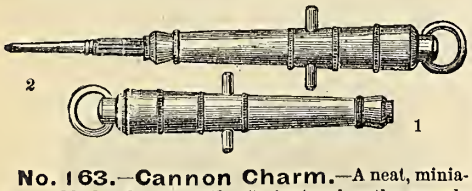
a ring at the head for attaching to a watch-chain. By same makers as No. 159. Only 3 subscribers, at $1.50 each, will secure the Ladies' size, *free*, post-paid, and 4 subscribers the Gentleman's size [We send the ladies' size, post-paid, for $2, and the gentleman's size for $2.75.]

**No. 161.—Gold Pen, Telescopic Case.**—Gold-plated case containing No. 4 Diamond-pointed Gold Pen, warranted. Same makers as No. 159. Only 4 subscribers sent to us at $1.50 each, will secure this splendid article *free* and post-paid. In sending for this pen indicate how you wish the pen—whether you desire it to be stiff, medium, or limber.—[We will send one of these fine Pens, post-paid, on receipt of $2.50.]

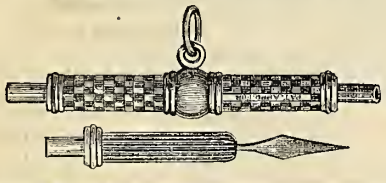
**No. 162.—Gold Pen and Pencil** (Combined.)—A very elegant premium. The handsome, heaviest gold-plated Holder contains a No. 7 Improved Telescopic Pen and Pencil. In lined leather case. The pen *slides* out, the pencil is thrown out by drawing back the *pencil head*; chamber for leads in top. Same makers as No. 159.



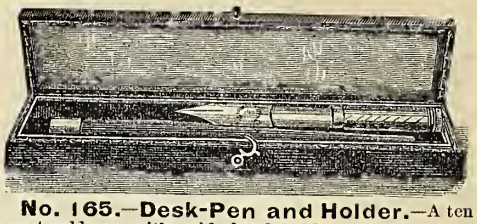
This is richly worth the little effort to collect only 7 subscribers at $1.50 each.—[We supply one for $5.50.]
☞ If to go by Mail, send us 14 cents for postage & packing.




**No. 163.—Cannon Charm.**—A neat, miniature gold-plated cannon (fig. 1); by turning the muzzle end, a small pencil is brought out (fig. 2). LUDDEN & DOW, manufacturers, 27 John St., New York. Only 2 subscriptions at $1.50 each are needed to secure it, post-paid. [We will send one post-paid on receipt of $1.25.]



**No. 164.—Watch-Bar, Tooth-pick, and Watch Key,** combined. A very pretty gold-plated charm for the watch guard. From same makers as No. 163. Only 2 subscriptions at $1.50 each will secure it, post-paid. [We will send one post-paid on receipt of $1.25.]

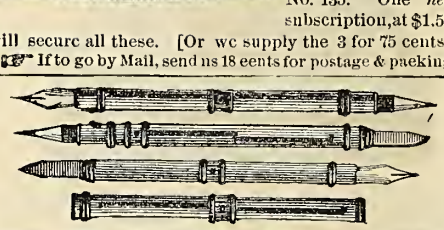


**No. 165.—Desk-Pen and Holder.**—A ten carat gold pen, with gold-plated holder and ebony handle, in case, a neat and useful article. Same makers as No. 163. For 4 subscriptions at $1.50 each, we will send it post-paid. [Or, we will send one post-paid for $2.25.]

**No. 166.—Desk-Pen and Holder.**—A fourteen carat gold pen, larger than No. 165, with handsome, gold-plated holder and ebony handle. An elegant desk-pen,—a handsome present for a gentleman. Same makers as No. 163. In ordering *any* pen, state whether a stiff, medium, or limber one is wanted. For 6 subscriptions, at $1.50 each, we will present one, and send it post-paid. [Or we will send one, post-paid, on receipt of $4.00.]

**No. 167.—Three Premiums in One.**—

1st. *Farrell's Combination Match-box*, containing Candle, Match Holder and Candlestick, nickel-plated—2d. *Scholar's Companion*, a Tin Box, containing Pen Holder, Lead Pencil, Slate Pencil, Rubber, Sponge, and Chalk Crayon—3d. *Hemp-Knitted School Bag*, strong and durable; length, 14 inches; depth, 11 inches. From same firm as No. 135. One *new* subscription, at $1.50, will secure all these. [Or we supply the 3 for 75 cents.]
☞ If to go by Mail, send us 18 cents for postage & packing.

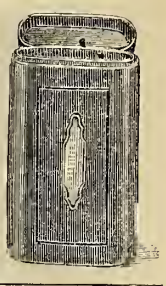


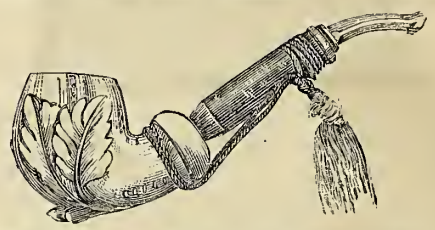
**No. 168.—Three Premiums in One.**—1st. *Lloyd's Combination Pen-Holder.* This is a Pen-Holder, with pen and lead pencil, ink-eraser and pen-knife combined, and can be used generally.—Price, 20 cents. 2d. *Book Clamps.*—This is a very useful and convenient article for carrying books; is strong and durable. Price, 30 cents. 3d. *Transparent Drawing Slate.*—This is just the thing to amuse the little ones; six pictures accompany the slate. Price, 15 cents. These are furnished by E. C. SELCHOW & Co., 41 John St., N. Y. Price for all, 65 cts. One *new* subscription at $1.50 will secure all three of the above, [or we will supply them for 65 cents].
☞ If to go by mail, send us 15 cents for postage & packing.

Prem. 169

**No. 169.—Self-Adjusting, gold plate, Watch Key.**—This Key is universally acknowledged by Practical Watchmakers to be the best ever offered to the trade. Several times, while on a summer trip in the country, we were able to accommodate friends, who had lost or mislaid their own watch keys, with one that would *fit any watch*, and it was one of these neat little things of Birch's invention. Each Key is thoroughly tested before being sold, and the whole is manufactured under the immediate supervision of the Patentee. Two subscribers, at $1.50 each, will secure post-paid, the neat gold plate Key offered as Premium. For *three* subscribers, we will send *free* the more expensive style, celluloid, with gold-plated tips, retailed at $1.50. Made by J. S. BIRCH, 38 Dey St., N. Y.—[Or we will send one, post-paid, for $1.00; or the finer style for $1.50.]

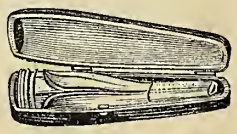
**No. 170.—Fine Cigar Case.**—Strong Leather, with inside case and hinged cover which slides inside, thus protecting it. It is opened by simply pressing upon the bottom. This is supplied to us by ERNEST SCHEEL, No. 40 Warren Street, New York. We will present this and send it *post-paid*, for one *new* subscriber at $1.50. [Or, we will supply and send it post-paid, for 50 cents].





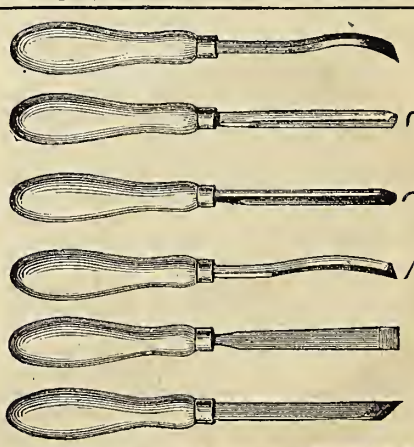
**No. 171.—A Genuine Meerschaum Pipe.**—Specially designed and cut for this Premium, by the well known F. J. KALDENBERG, No. 125 Fulton St., New York. A fine Present. It has a *Cherry* Stem (the *best* for use), and *Amber* Mouth-Piece, Cord and Tassel, etc., as shown in the larger engraving, above. Length, 6 inches. It has fine leather case as shown in smaller side engraving. This will be presented complete and post-paid, for only *eight* subscriptions at $1.50 each. [Or, sent post-paid for the price, $7].

**No. 172.—Meerschaum Cigar-Holder.**—(Genuine, cut specially for this Premium, by same party as above.) Tulip pattern, Amber Mouth-Piece, and goes in a fine Leather Case. Length, 3 inches. Presented post-paid, for only 3 subscriptions at $1.50 each. [Or, we send it post-paid, for $2.00.]



**No. 173.—Magic Paint-Box.**—This is divided into two compartments; on opening one side, it will be found to contain 12 Cakes Assorted Paints, 2 Cups, 2 Paint-Brushes, and Drawing Lessons; then turn the box over and open the other side; that will contain 3 Stencil Plates, one piece Rubber, two packages assorted Crayons, Crayon-Holder, 1 Crayon-Shader, 1 Lead Pencil, and 1 Brush, all packed in a polished box. From STIRN & LYON, 20 Park Place, N. Y. Three subscriptions at $1.50 each will secure this [or we will supply it for $2].
☞ If to go by mail, send us 15 cents for postage & packing.

**No. 174.—Paint-Box.**—This box contains twenty Cakes Assorted Paints, four Cups and three Brushes, all packed in a stained wood box, carved cover, with hinges. From STIRN & LYON. One *new* subscription at $1.50, will secure this [or we will supply it for 75c.]
☞ If to go by mail, send us 10 cents for postage & packing.

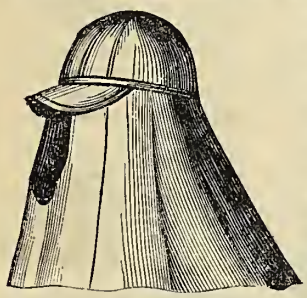


**No. 175.—Carving Tools.**—Handles of Beech and polished. The tools are made from the best steel, and are sharp and ready for use. From the same firm as No. 168. Two subscriptions at $1.50 each will secure these post-paid [or we will send them post-paid for $1.00].

**Nos. 176 to 184.—Valuable Rubber Articles.**—One may almost say that India Rubber now contributes more to Human Health, Comfort, and Convenience, than any other single natural product—iron excepted. Any one would be astonished to see the immense *variety* of articles at the great establishment of the GOODYEAR'S RUBBER M'F'G CO., and GOODYEAR'S INDIA RUBBER GLOVE M'F'G CO., Nos. 488, 490, 492 Broadway, New York (established in 1844). (Samples of most of them can also be seen at 205 Broadway). From the above great stock we have selected nine most excellent and useful articles, which will be highly appreciated by our readers.

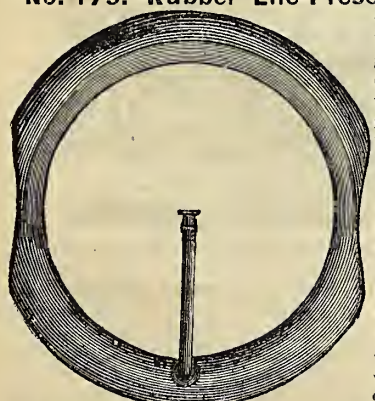
**No. 176.—Rubber Sack Coat,** (Gentlemen's) "ZEPHYR." The great utility of this need hardly be specified. It is strong, durable, entirely water-proof, and yet weighs only about 1 lb. or 16 to 20 ounces, according to size; can be packed in small space; is sent packed in a rubber pouch or bag, for carrying it in. Made in various lengths and sizes. In ordering, give bight, weight, and size around breast under the arms, in inches. From the makers named above. This will be presented to any one sending only 9 subscribers at $1.50 each [or supplied for $7.50]. Sent post-paid in either case.

**No. 177.—Rubber Cap, with Cape.**—A capital thing in a storm, the cape coming down over the neck and shoulders, to shed rain perfectly. The front-piece acts as a roof over the eyes and face, with a sufficient opening for seeing and breathing freely. Weigbt only 6 ounces. From same makers as above. It will be presented, post-paid, for sending only two subscriptions at $1.50 each [or we will supply it post-paid for $1.00.] (Send size of hat you usually wear.)

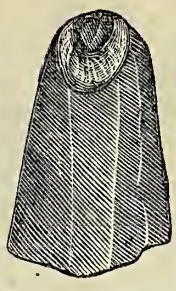


**No. 178.—Men's Leggins (Rubber).**—Nothing could be better than these for a wet day, wet grass, etc., as they keep the pantaloons dry and comfortable. Entirely water-proof, strong, and durable, and yet weighing only 5 ounces for the medium size. Those ordering, should state whether desired *small*, *medium*, or large size. From same makers as above. We present and forward a set post-paid for 3 subscriptions at $1.50 each [or we supply them, post-paid, for $2]. (With these, the Rubber Sack-Coat and Cap, one will be "storm-proof," if the feet be protected; yet the weight of the whole is only 30 ounces, or less than 2 lbs. Total cost of all these, $10.50. And the *whole* will be presented, and all sent post-paid, for 12 subscriptions at $1.50 each [or we will supply them, post-paid, for $10.50].

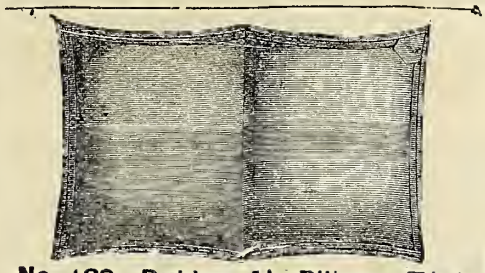
**No. 179.—Rubber Life-Preserver.**—An excellent article when going upon or into the water. Inflated quickly through the pipe, and put around under the arms, it will support the head fully above the surface, even in very rough water. It weighs only 9 ounces, and can be packed and carried in very small space. Of best quality, and durable. From makers above. This will be presented to any one sending only 4 subscriptions at $1.50 each [or we supply it for $2.50.] Sent by mail, post-paid.



**No. 180.—Ladies' Zephyr Waterproof.**—This is of first-rate quality, and a most desirable article for every woman. It is entirely water-proof, lasting, and yet so light that it can be rolled up and carried in the pocket. (Mailed in a small rubber pouch, that may be used for carrying it in.) They vary from 50 to 62 inches in length. In ordering, give measure from neck to bottom of walking-dress, or the length desired from the neck down. From same makers as above. Price $6. We will *present* one for only 8 subscriptions at $1.50 each, [or supply one for the price, $6.00], and send post-paid.

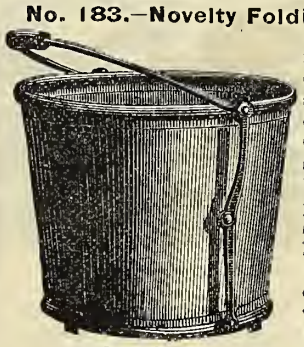


**No. 181.—Rubber Camp-Blanket,** or for any other use requiring a water-proof cover, or under blanket. Size, 3¾×6 feet (45×72 inches); weight, 2½ pounds (40 ounces). Same makers as above. This will be presented for *three* subscribers, at $1.50 each [or supplied for $1.75]. Sent by express unpaid, or sent by mail post-paid for 25 cents extra (one-half the postage).

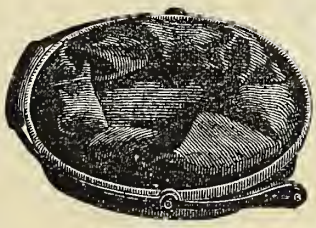


**No. 182.—Rubber Air Pillow.**—This is very handy to carry rolled in small space (weighs only 10 ounces); can be inflated in a moment, furnishing a soft, healthful pillow, with sufficient depression in the middle to make it lie easy. From 488–492 Broadway, as above. It will be presented, post-paid, for only three subscribers at $1.50 each [or we send it post-paid, for $2.00].

**No. 183.—Novelty Folding Pail (Rubber).**—This is a most valuable article. The Pail is full size, made of strong enamelled Rubber Cloth, coated on both sides, with top and bottom hoops, supported by jointed side braces, with hinges like carriage-top braces. It is durable, and adapted to all purposes of any large pail, and when not in use it folds down to only an inch or so in thickness, so that it can be carried in small space, under the cushion of a carriage or buggy, out of the way and out of sight, but always ready for instant use. Price only $2.50. We will present one for four subscriptions at $1.50. [Or supply one for $2.50.] It will be sent by express unpaid (or it will be sent post-paid by mail if 42 cents extra be furnished.)

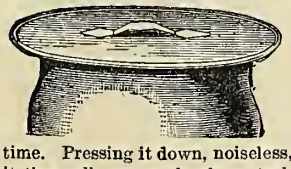


PAIL OPEN.

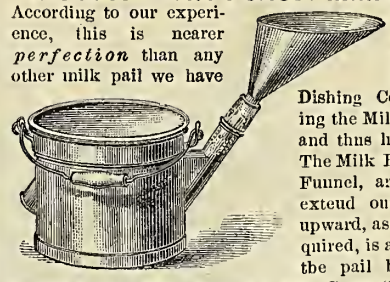


PAIL CLOSED.

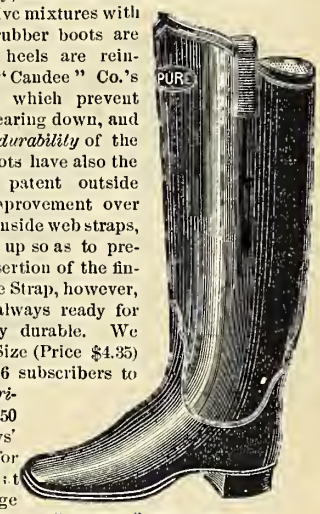
**No. 184.—Rubber Air-tight Cover.**—For Jars, Chambers, etc.—A flat, round cover, with rim and handle in the center. For so cheap and simple a thing, there are few more valuable rubber articles than this, especially for the chamber, in sickness, or at any time. Pressing it down, noiseless, it expels a little air; it then adheres so closely as to be air-tight—thus suppressing all unpleasant odors. (In smaller sizes they make excellent covers for Jars, etc.) They are easily washed. One may well be in every bed-room at least. From same makers as above. For one *new* subscription at $1.50, we present one of these Covers, 10 inches diameter, post-paid, [or mail one, post-paid, for 60 cents].



**No. 185.—"The Perfect Milk Pail."**—According to our experience, this is nearer *perfection* than any other milk pail we have ever seen. A strong 14 Quart Pail, with a Dishing Cover forming the Milker's Seat, and thus held firmly. The Milk Receiver or Funnel, arranged to extend outward and upward, as may be required, is attached to the pail by a large flexible Rubber Tube, having a Wire-Gauze Strainer inside. The Tube bends aside, if the cow starts or kicks. The Funnel can be turned so as to receive the milk-streams and yet shut out rain and dirt. It may also be held inverted by the knee, while brushing the bag. There are many other ingenious and convenient arrangements conducing to cleanliness, freedom from odors, etc., etc. It is from the DAIRY SUPPLY CO., 261 and 263 Greenwich St., N. Y., who will send circulars giving further particulars if desired. We will present one of these Pails for three subscribers at $1.50 each, [or we will supply one for $2.] Express or freight to be paid by recipient.

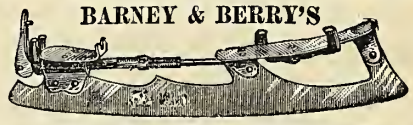


**Nos. 186-7.—Men's and Boys' Pure Gum Boots.**—The "*Candee*" Pure Gum Boots (L. Candee & Co., New Haven, Conn.) are made with a view to great durability, and are claimed to be entirely free from the adulterative mixtures with which common rubber boots are cheapened. The heels are reinforced with the "Candee" Co.'s patent *heel irons*, which prevent the heels from wearing down, and therefore add to *durability* of the Boots. These Boots have also the "Candee" Co.'s patent outside straps, a great improvement over the old-fashioned inside web straps, which always curl up so as to prevent the quick insertion of the fingers. The Outside Strap, however, is quite handy, always ready for use, and perfectly durable. We offer the Men's Size (Price $4.35) as a premium for 6 subscribers to the *American Agriculturist* at $1.50 each, or the Boys' Size (price $3.00) for *four* subscribers, at $1.50 each. Carriage to be paid by receiver. In ordering these, state *size of shoe you wear*.



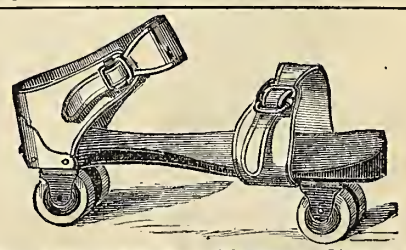

"CANDEE" PURE GUM BOOT.

**BARNEY & BERRY'S**



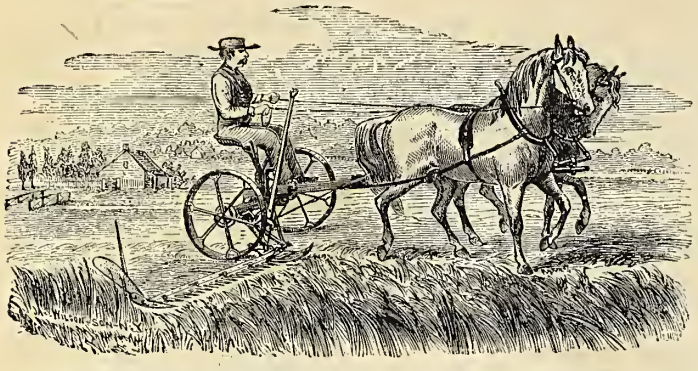
**No. 188.—One Pair Skates.**—The style we offer, is Barney & Berry's All Clamp Skate, wholly of Steel, Blued, with Polished Runners. Size, 8 to 12 inches. From BARNEY & BERRY, Springfield, Mass. Price, $3.50 Five subscriptions at $1.50 each, will secure this [or, we will supply them for $3.50], expressage to be paid by the recipient, in either case. Send us the size of your shoe.

**No. 189.—One Pair Skates.**—This style is the genuine Club. From same makers as No. 188. Is Blued, and made of Steel. Size, 7 to 12 inches. Price, $2.75. Four subscriptions at $1.50 each will secure them [or we will supply them for $2.75]. The expressage is to be paid by recipient in either case. Send size of shoe.

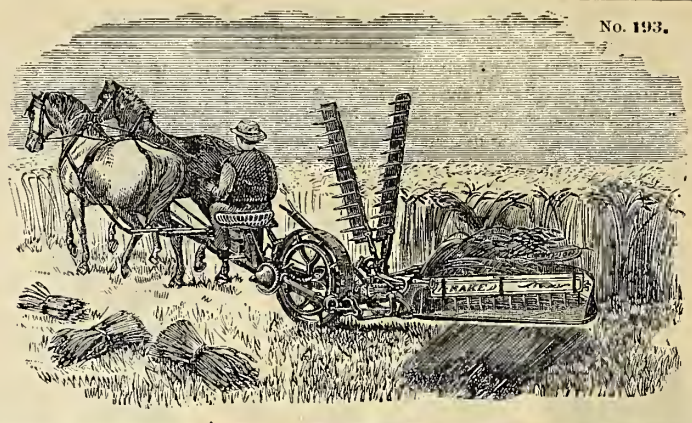


**No. 190.—Parlor Skates.**—Made of polished beech-wood, trimmed with black leather, broad toe and heel straps, and adjustable instep strap, with patent buckle. From same firm as No. 237. Price, $3. Four subscriptions, at $1.50 each, will secure these. [We will supply a pair for $3.] Receiver to pay expressage in either case. In ordering, give the size of your shoe.

No. 191.



No. 193.



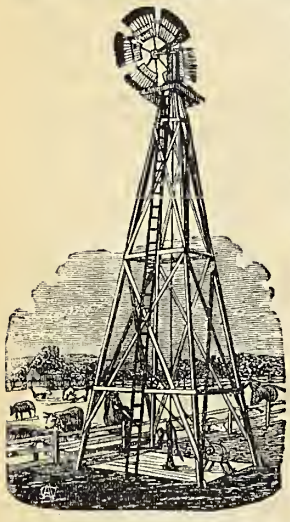
**No. 191.—New Champion Mowing Machine.**—A GREAT PREMIUM, worthy the attention of all farmers who grow hay. The *New Champion Mowing Machine* is now so well known as to scarcely need any description by us. Its novel and ingenious device for operating the cutting-bar, as well as the simplicity of the arrangement of its working parts, are great desiderata—lessening wear and tear, and liability to get out of order. They are so simple in their operation, and under such perfect control, that they can be easily managed by a boy or girl who is able to drive a team of horses. All interested, are invited to send their address, on a postal card, asking for full descriptions and illustrations, which will be forwarded free. Send to any one of the following Manufacturers, viz: Messrs. WHITELEY, FASSLER & KELLY, *or* to WARDER, MITCHELL & Co., *or* to CHAMPION MACHINE Co., all at Springfield, Ohio; *or* to TORONTO REAPER & MOWER Co., Toronto, Canada. Almost any enterprising farmer, or farmer's son, can soon, or at least during fall and winter, gather only 80 subscriptions at $1.50 each, and get this $85.00 mower *free;* (two or more may unite their efforts, and own the machine together.) In former years, many single farmers gathered as many as 200 subscriptions for such premiums, when prices were higher, and many more names required. To those gathering the premium clubs, the only cost will be the freight from Springfield, Ohio, or from Toronto, Canada. The subscribers may be gathered in several different towns.

**No. 192.—The Champion Combined Mower and Reaper.**—Many whose means are limited do not feel able to purchase two separate machines, such as a Mower and a Reaper. The manufacturers of the Champion Machine, in order to meet this want, have made a Combined Mower and Reaper, for which they claim the most successful results. These machines are made as single Mowers first, to which the Reaping, Raking, and Dropping attachments are added when the occasion requires. The machinery for operating the knife is substantially the same as in the Single Reaper.—We have not space to describe the many ingenious improvements in this combined machine, the arrangements for picking up and cutting badly lodged and tangled grain; its self-raker and delivery of the sheaves, the saving from scattering grain, the durability, etc., etc., etc. Send to the manufacturers named above (Prem. No. 191) and get full descriptive sheets, which will be interesting reading. We are happy to be able to offer this Combined Machine (Price $150) to any person or combination of persons forwarding us only 135 subscribers to the *American Agriculturist* at $1.50. Many can thus get it free of cost, except freight, as noted under No. 191. We have over 135 subscribers in many towns.

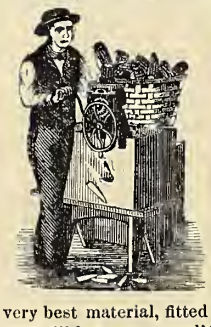
NO. 192.—CHAMPION COMBINED MOWER AND REAPER.

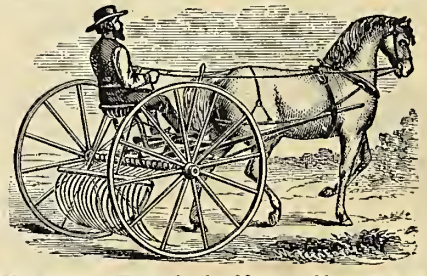
**No. 193.—The New Champion Reaper.**—Made by the same parties as the New Champion Mower, No. 191. The distinguishing features claimed for this machine are: lightness of draft, freedom from side draft and weight on neck of team, adapting it to all kinds of work; also its ability to harvest successfully the most difficult crops under the most unfavorable circumstances. The frame is of wrought iron, the machinery simple and well made, only one spur pinion and one pair of bevel wheels being used in addition to the driving wheel for operating the knife. The bearings for the bevel wheel shaft and the fly-wheel shaft are very long, and of malleable iron, bored out and polished smooth. The shafts, after being turned, are case-hardened and re-polished, making the most perfect wearing bearings that can be made. The Pitman is long and works almost on a straight line, giving extraordinary power to the knife. The Cutter-bar and Guards are fitted up perfectly, instead of the ordinary cheap cutting apparatus used on other Single Reapers. The Rake is driven by gear and tumbling-shaft Couplings, giving it a positive and steady motion. The machine is carried upon one large wide-faced driving wheel, and one large caster grain wheel. The latter is adjusted for cutting high or low by the use of a small pinion working into a rack gear by the use of a crank, and secured at any desired point by a spring-thumb latch. The inner end of the bar is raised or lowered by the use of a lifting lever, and a notched segment, and can be secured at any desired hight. The hight of cut may be instantly changed by the use of the tilting lever. The point of the divider, reel, and cutter-bar, may be thrown down for picking up badly lodged and tangled grain, or thrown up for cutting tall standing grain. The whole machine, under the instant control of the driver, without leaving his seat, ought to commend it to any one who desires such a magnificent Premium. The price is $130.00, but we will *present* one of these New Champion Reapers on receipt of only 120 subscriptions, at $1.50 each. The receiver to pay freight.

**No. 194.—The Champion Wind Mill.**—The accompanying cut represents the Champion Wind Mill placed in position for operating a farm pump. It is manufactured by POWELL & DOUGLAS, of Waukegan, Ill. These Mills are claimed by the manufacturers to be the best wind power ever invented; that they are perfectly self-regulating, and adapted for Farm Use. In order that our patrons may secure one of these useful and valuable Mills, we have arranged with the manufacturers to offer them as a premium. We will ship to any one sending us 91 subscriptions, at $1.50 each, one of the Champion Wind Mills. This includes everything above the platform near the top of the Mill. The derrick, or that part below the platform, can be built by any carpenter, as full detail drawings accompany each Mill; or the manufacturers will furnish derricks at a reasonable cost. [We will furnish one of these Mills for $100, the regular manufactory price.] Receiver in either case to pay the freight.

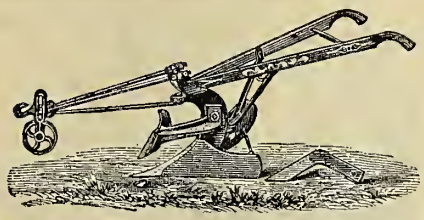


**No. 195.—The Monitor Corn Sheller.** Of the many implements invented and manufactured to lessen the labor of farm work, there has been no more popular little machine than the hand Corn Sheller made by LIVINGSTON & Co., of Pittsburgh, Pa., and called *Monitor Corn Sheller*. It is admirably adapted for shelling seed corn, where care must be taken in not breaking the outside covering of the kernel. It is easily adjusted to a bench or stool, and can be operated by a child. These Shellers are made of the very best material, fitted up in a workman-like manner, and will last any one a life-time with proper care. They have been awarded medals or diplomas by nearly all the leading Fairs in the Union, and are recommended by those who have used them, and speak from a knowledge of their value. Seven subscriptions, at $1.50 each, will secure this useful article. [Or we will supply it on receipt of $5.] The receiver pays express charges.

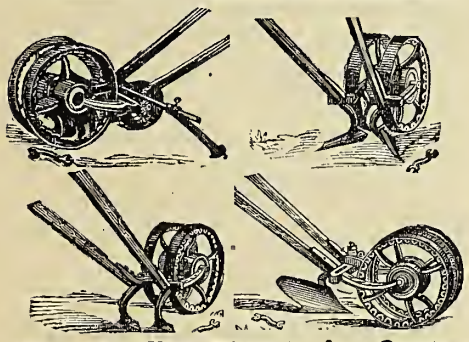




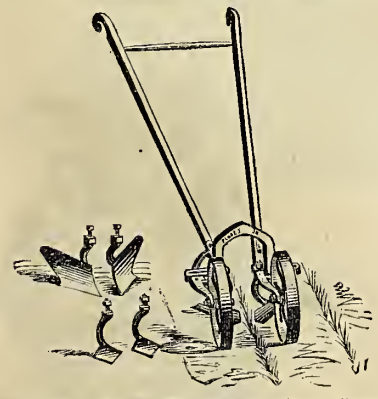
**No. 196.—The Gale Horse Hay-Rake.**—This labor-saving implement, doing the work better and faster than half a dozen men with hand-rakes, is wanted on every farm. The annual interest on its cost, is about the same as the cost of one day's work and board of a man. We have arranged with the GALE MANUFACTURING Co., Albion, Michigan, to offer this excellent and cheap $25 Horse-Rake, as a Premium for subscriptions. Send to the company for fuller descriptions if desired. On the receipt of 25 subscriptions at $1.50 each, we will present one of these Rakes [or will furnish one for $25]. The receiver to pay the freight from the manufactory.



**No. 197.—The Gale Chilled Plow.**—This excellent improved plow is worthy of special attention, and we are glad to be able to supply one without cost, to at least one farmer in every neighborhood, who will simply take the trouble to gather a club of 17 subscribers to the *American Agriculturist* at $1.50 a year. [Send your address, on a postal card, to the GALE MANUFACTURING COMPANY, Albion, Michigan, asking for full description, and it will be sent you free]. The engraving above, shows one of these Chilled Plows with *iron beam*, which is claimed to be far superior to the wooden beam. [Those preferring, can have the wood beam at same price]. Our Premium Plow includes Wrench, extra Point, and the useful Jointer and Wheel, all without extra charge. Price of the whole, $16.00, for which price we will supply it, or send it complete, as above, for the 17 subscriptions. Freight from manufactory to be paid by the recipient.

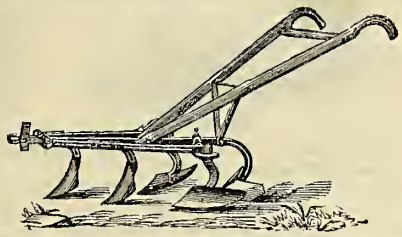


**No. 198.—The Planet, Jr., Garden Drill, Wheel Hoe, Wheel Cultivator, and Wheel Plow, Combined.**—This combination of garden tools is one of the most valuable ever offered to our readers. The four engravings show a portion of the combinations. As a Drill, it is capable of sowing the whole list of garden seeds, being furnished with an adjustable opening plow, patent dropping and covering devices, and a marker and roller. As a Wheel Hoe, it hoes close and thoroughly the smallest plants. As a Wheel Cultivator, one can do as much with it as six with hand hoes. In addition to these useful combinations, the tool is provided with an elegant polished steel plow, an ever useful assistant in the garden from spring until fall. The makers claim that this combination is the most valuable that has ever been offered to the gardener. The price is but little more than that of an ordinary seed-drill, yet the additional combinations are many times more useful than the drill alone. Descriptive catalogues will be sent on application by postal card to the manufacturers, S. L. ALLEN & Co., 229 Market St., Phila. We present this premium for 14 subscriptions at $1.50 each. [Or we will supply the apparatus for $12.] Carriage in either case to be paid by receiver.

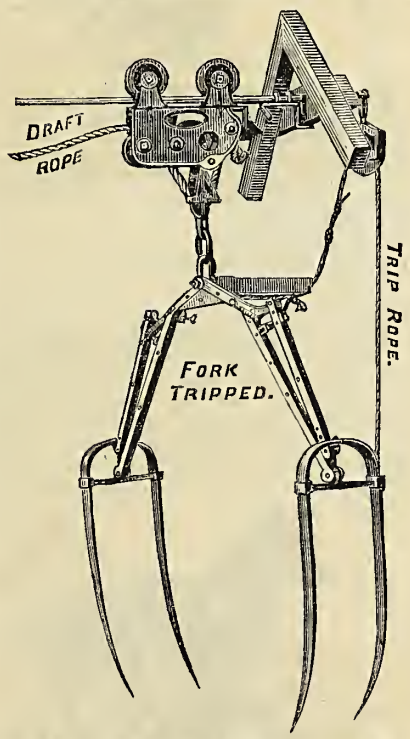


**No. 199.—The Planet, Jr., Double Wheel Hoe, Wheel Plow and Cultivator.**—Garden and drilled crops must be hoed constantly, and this tool, in its present improved form, does its work so much more closely and perfectly than the most skillful hand labor, that no market gardener, root grower, onion grower, nurseryman, or plant grower can afford to be without one. The great ease and speed with which the work of hoeing drilled crops can be accomplished with this tool, makes it possible to tend a large crop at the proper time. All are of tempered steel, handsomely polished. The advantages of a good Double Wheel Hoe are numerous; working both sides of the same row at once, all hands in the row are readily followed, and the work done far closer and better, and also easier, from the attention being directed to but one row at a time. The tool weighs about 20 pounds, and being used with a stroke or punching motion, is very effective in all kinds of soil. From same makers as No. 198. Only 10 subscriptions at $1.50 each will secure this. [Or we will supply it on receipt of the price, $8.] Receiver in either case to pay for transportation from the manufactory.

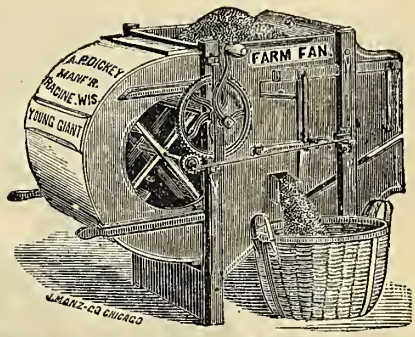
**No. 200.—The Planet, Jr., Horse Hoe.**—This tool combines, to a large extent, in one tool, the valuable qualities of the Cultivator, the Wheel Hoe, and



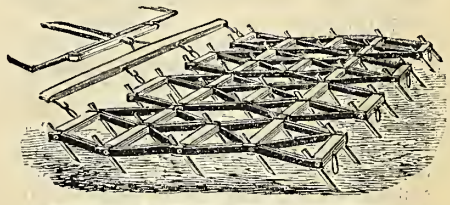
the Plow. It is made with wrought iron frame and standards, and tempered and polished cast-steel blades. It has the following advantages in mode of operation: The narrow, front teeth cultivate deeply the middle of the row, where there is no danger of injuring the roots, while the hack teeth follow shallower, with long, cutting edges, which kill all weeds in their path, and leave the ground in fine condition. When used as a hoe, with side teeth reversed, it can be run very close to the row without cutting roots, and when thus used previous to hand hoeing, it saves a large portion of the work, and makes the remainder easy; the portion left for the hand hoe being clearly defined, with the worked soil left conveniently near for use in finishing the row. The side teeth, when used as shown in the cut, throw a furrow to the row, covering all small weeds, and hilling much or little, as desired. By same makers as No. 198. We will present this premium for 14 subscriptions, at $1.50 each. [Or we will supply one for $12.] Freight to be paid by receiver.




**No. 201.—Gardner's Grappling Pitching Apparatus.**—One of the most valuable and practicable combinations ever invented for unloading hay, grain, straw, cornstalks in bundles, etc. Included in the arrangement are the Fork, Car, including Knob Pulley, four Pulleys, and three Screw Hooks, (*see engraving*). The fork can ascend straight, or on a twist; the knob enters the car, and both car and fork move off without difficulty. It runs on a rod-track,—which is most durable, simple, cheap, and easily put up. The apparatus is also valuable for stacking purposes, and does the work very successfully. Manufactured by E. V. R. GARDNER & Co., at Johnsons, Orange Co., N. Y. We will present this Pitching Apparatus for only 30 subscriptions at $1.50 each. Freight from manufactory to be paid by receiver. [We will supply the Apparatus for $31.00.]

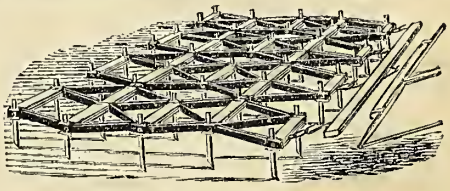



**No. 202. Dickey's Farm Fanning-Mill.**—No one who raises grain of any kind, can afford to be without a proper machine for cleaning the grain ready for market or use. Mr. A. P. DICKEY, of Racine, Wis., has been engaged for 35 years in the manufacture of farm implements, and has added many valuable improvements to the expedition of farm work in that time. He has for years manufactured his well known Fanning Mills. He makes them of nine sizes, which have a capacity for cleaning grain from 40 to 400 bushels per hour. These fans range in price from $32 to $90. The cut represents a No. 1 Farm Fan, which sells for $35. We will *present* this to any person sending us only 33 subscribers at $1.50 each [or we will forward it on receipt of the price, $35], the receiver to pay the freight from the manufactory in either case.



BRADLEY HARROW—TEETH INCLINED.

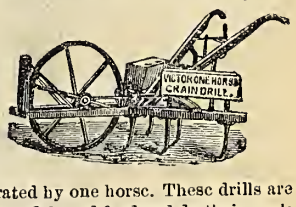
**No. 203.—Bradley's Reversible Harrow.**—It is claimed by the manufacturers that no implement for working the soil has ever been invented which meets such a variety of requirements as this. The frame is made of wrought iron, strong and durable; the teeth of solid steel, chisel-pointed, which can easily be lengthened or shortened, according to the requirements of the soil. As the Harrow is made in sections, hinged together, it is flexible, and conforms to uneven surfaces. It is thoroughly effective in pulverizing lumpy ground, in preparing green sward for a crop, and in covering grain. The teeth are pivoted; when the Harrow is drawn in one direction, they slope, and can then be used as cultivators, for covering seed, or harrowing lightly-turned sod without disturbing it; when the Harrow is reversed, the teeth



BRADLEY HARROW REVERSED—TEETH UPRIGHT.

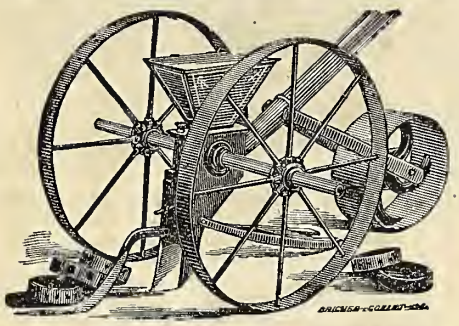
are upright, and perform the ordinary work of the common harrow. The use of these implements is one of the modern improvements in agriculture. Manufactured by BRADLEY & Co., Syracuse, N. Y. The style we offer (45 teeth) is made in three sections, 15 solid teeth in *each* section (6 feet wide). Price, $25. We will supply it for 25 subscriptions, at $1.50 each. Receiver to pay freight.

**No. 204.—Victor Five-Hoed Seed Drill.**—There are many farmers who do not feel able to invest a large sum of money in farm implements. Many such persons have small farms that require but little labor to cultivate them. To meet a long felt want by this class of most worthy citizens, Mr. EWALD OVER, of Indianopolis, Ind., has invented and perfected a five-hoed




Seed Drill, to be operated by one horse. These drills are provided with a graduated forced feed and do their work as well as the best ten-hoed drill in the market, and are especially adapted for sowing small grain of all kinds. They are substantially made, light in weight, and cheap in price. For 25 subscribers we will *present* one of these five-hoed drills [or will send one on receipt of the price, $25], the receiver to pay freight in each case.

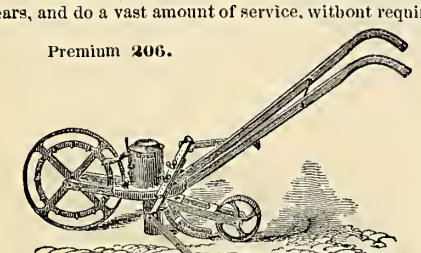
**No. 205.—Sargent's Monitor Seed Drill.**—Made entirely of metal; light, strong, and durable. To this machine have been awarded two "First Premiums," and also a diploma at the Massachusetts Mechanics' Charitable Association in 1874. It was awarded the first prize at the Centennial Exposition in 1876, and it has received hundreds of endorsements and



most favorable testimonials from practical agriculturists who have used it. (We have used one with very great satisfaction). The manufacturers claim that this machine is radically different from all others, and that while it does everything that is done by other machines equally well, it effects other results, fully as important, which competing machines do not even attempt. It is manufactured by the MERRIMAE MACHINE COMPANY, Newburyport, Mass. It will be presented by us for 12 subscriptions, at $1.50 each. [Or we will supply one for $16.] Carriage in either case to be paid by the receiver.

**No. 206.—Matthews' Garden Seed Drill.**—This is regarded as one of the most valuable implements in use. Medals and testimonials confirming its superiority have been repeatedly bestowed upon it. It is designed to be used either in field or garden. In operation, it opens the furrow, drops the seed accurately at the desired depth, covers it, and lightly rolls it, and at the same time marks the next row, all of which is done with mechanical precision, by simply pushing the drill forward. In this way it sows, with an evenness and rapidity impossible for the most skilful hand to do, all the different varieties of beet, carrot, onion, turnip, parsnip, sage, spinach, sorghum, peas, beans, broom corn, fodder corn, etc. The drill is complete in all its arrangements, and is very durable. There are no cams, gears, springs, or belts, to get out of order, nor are there any parts subject to unusual wear, and, with fair usage, it will last many years, and do a vast amount of service, without requiring

Premium 206.

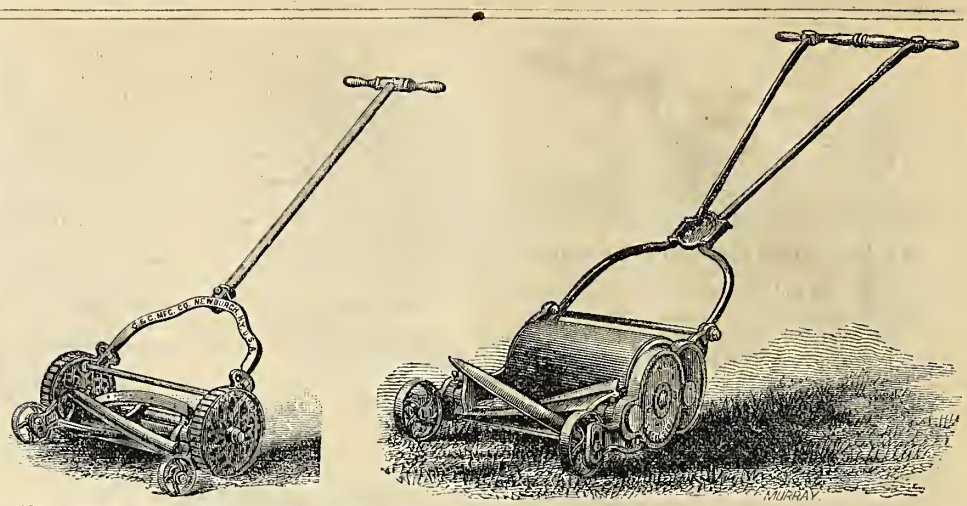


any repairs. Made by EVERETT & SMALL, Boston, Mass. This fine implement given for 14 subscribers, at $1.50 each. [We will supply one for $12.] Receiver to pay carriage.

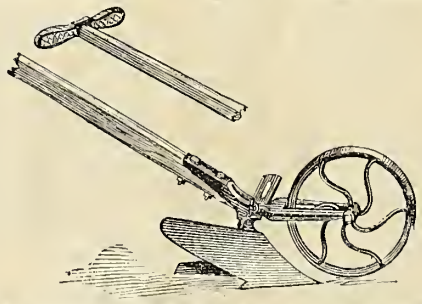
**No. 206.—Cahoon's Broadcast Seed-Sower.**—This Hand Seed-Sower sows from four to

Prem. 206.

eight acres per hour, at a common walking gait, throwing wheat and rye from 30 to 36 feet wide; barley, 30 feet; hemp, 28 feet; oats, 23 feet; clover, Millet and Hungarian seed, 22 feet; and Timothy, 18 feet. Price, $6. Presented to any sender of 8 subscribers for *Agriculturist*, at $1.50 each. It is manufactured by the GOODELL Co., at Antrim, N. H.—[We will supply one on receipt of the price, $6.] Receiver to pay express charges.

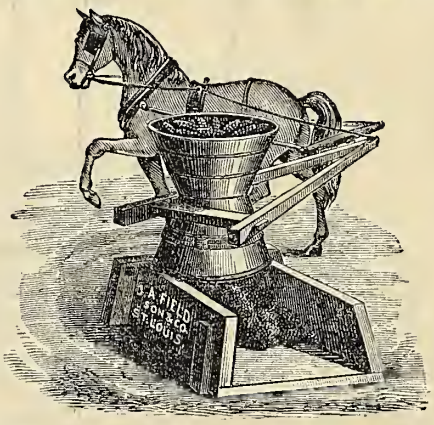


**No. 208.—The Excelsior (Side-wheel) Lawn Mower.**—This very useful implement has patent self-cleaning gears, which do not clog. It is comparatively noiseless in its operations. It has an improved Ratchet without spring to get out of order. Its adjustments are simple, and it is one of the lightest and best Side-wheel Mowers in the market. The unsought commendations received concerning them from purchasers and users everywhere, is the best evidence that could be given of their value. Made by the CHADBORN & COLDWELL M'F'G. Co., Newburgh, N. Y. For this premium we offer the 12-*inch style*. Price, $18; and will present one for 19 subscriptions, at $1.50 each. [Or we will supply one for $18.] Freight in either case to be paid by receiver.



**No. 210.—Firefly Hand Hoe.**—For garden use. This hand hoe, adjustable for depth, and steadied by the wheel, is a really practical tool for the vegetable garden, doing the work every way in an excellent manner. With it almost the whole work of a garden can be accomplished with ease, thoroughness, and rapidity, the slight weeding or hoeing needed directly *in* the row excepted. 4 subscriptions, at $1.50 each, will secure this. [Or we will send one on receipt of $2.50.] Receiver in either case to pay carriage by express or freight. These Hand Hoes are made by S. L. ALLEN & Co., Phila., Pa.

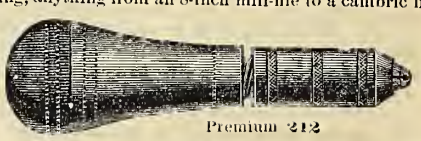
**No. 211.—Big Giant Feed Mill No. 2.**—The engraving below represents one of Messrs. J. A. FIELD, SON & Co's. Big Giant Feed Mills, expressly adapted for grinding all kinds of grain for home consumption or stock use. Recent improvements have been added to the mill by which the makers claim that it is the most rapid fine grinder ever invented, where so slow a speed and little power is used. One of these mills has been




used by one of the Editors of the *American Agriculturist* for grinding all kinds of grain in the most satisfactory manner. The mill is so arranged that the grinding surfaces can be taken out and replaced with new ones when worn out. We will present the above mill on the receipt of 50 subscribers at $1.50 each [or will forward one on receipt of $50], the receiver in each case to pay the freight.

**No. 209.—The Excelsior (Roller) Lawn Mower.**—From the CHADBORN & COLDWELL MFG. Co., Newburgh, N. Y. This Mower is well known to the public. It is very light in draft. It cuts the borders and rolls the ground, and the gears are perfectly covered. This Mower does the most thoroughly satisfactory work. [We are using one with very great satisfaction.] The Engineer of the Department of Parks, New York City, says: "We find the Excelsior the best Lawn Mower we have ever used on the Parks, and they need less repairs than any others." The Superintendent of Parks, Boston, Mass., says: "We have concluded to use no other Mowers on the Commons." We offer as premium the 15-inch style. Price, $21; and will present one for 21 subscriptions, at $1.50 each. [Or we will supply one for the price, $21.] Carriage in either case to be paid by receiver. The prices of other styles vary according to width of Mower, and can be supplied by us on application at the regular prices, or for a proportional number of subscribers.

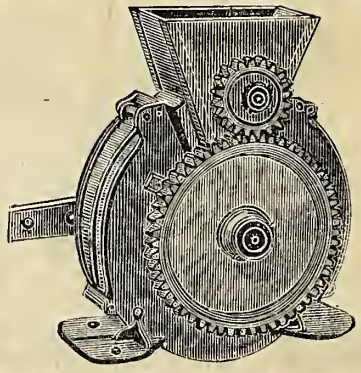
**No. 212.—Pocket Tool Holder.**—(*See Engraving.*)—Every boy (or man) will be glad to get hold of this Premium. We kept a similar, but less perfect set in use many years, and found it *very convenient* for a thousand little jobs. In a maple handle, which is hollow, with a lignum-vitæ head, are packed *twenty* small *cast-steel* tools, any one of which may be quickly adjusted to the handle. It will also hold for using, anything from an 8-inch mill-file to a cambric nee-



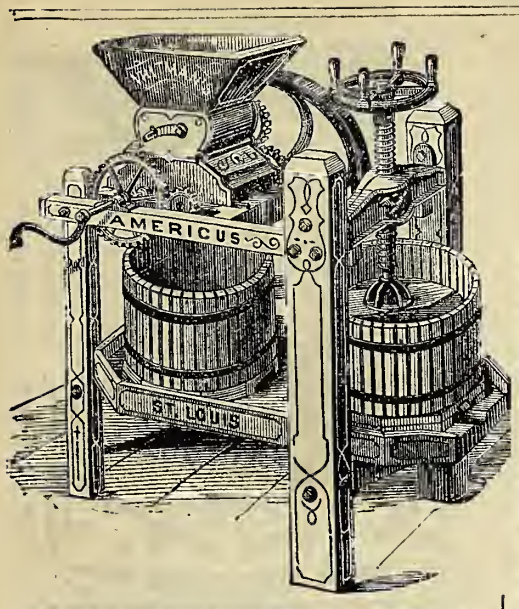
Premium 212

dle. Only 2 subscribers, at $1.50 each, sent to us will secure you a *free* set, post-paid. These are made for us by the MILLERS' FALLS MANUFACTURING Co., 74 Chambers St., New York.—[We will send one, post-paid, for $1.00.]

**No. 213.—The Winger Farm Mill.**—Small "Grist Mills" are becoming very common on the farm, and are doubtless very economical where there is not a good Custom Mill within easy reach, if one has a horse-power, or windmill power; or the smaller kinds can be run by hand, and they will often save the annual interest on their cost in a single day. The above Mill, costing only $20, is made by the STOVER WIND ENGINE Co., at Freeport, Ill. Many improvements and advan-

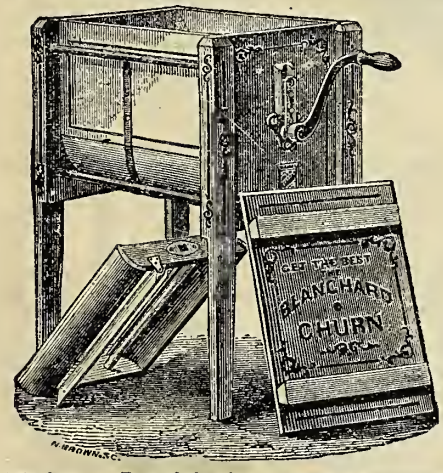


tages are claimed for it, such as placing the grinding wheel in the center, thus giving four grinding surfaces instead of two; the wheel and case of chilled cast-iron; easily taken apart, etc., etc. (Send to the Company for a descriptive circular.) We will present one of these Farm Mills, with extra parts, for only 20 subscriptions, at $1.50 each. [Or will forward one on receipt of $20.] The receiver to pay the freight from the manufactory.



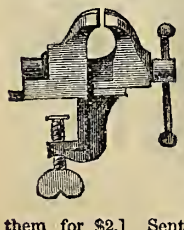

**No. 214.—Americus Senior Cider and Wine Mill and Press combined.**—Many of our readers and friends raise grapes and apples, but not in sufficient amount to warrant sending a great distance to have fruit ground and pressed. To meet this want, The WHITMAN AGRICULTURAL CO., of St. Louis, Mo., have invented and manufactured a Grinder and Press combined, secured in one frame as shown in the engraving. It mashes the fruit perfectly; the rollers are adjustable, so as to grind either coarse or fine; easily cleaned and every way desirable to the purchaser. With this excellent arrangement of the two machines, it requires but little room and is always ready for immediate use for the largest or smallest quantity of fruit. On the receipt of 38 subscriptions at $1.50 each, we will present one of these mills [or will forward one on the receipt of $40], the receiver, in either case, to pay the freight.

**No. 215.—The Blanchard Churn.**—Of the many kinds of apparatus made for converting Cream into Butter, the Blanchard Churn, manufactured by PORTER BLANCHARD'S SONS, Concord, N. H., stands among the best. The makers claim that the action of the dasher is such as to cause agitation of the cream by creating currents, and not by beating or friction of the cream. Four motions are given to the cream by one revolution of the crank. A *reverse* motion of the dasher gives a cam pressure to the butter by which the butter-milk may be all worked out, and the salt worked in, without removing the dasher. Facility of removing the dasher and getting

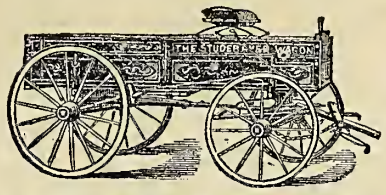



at the butter. Ease of cleaning, the form of construction making the inside without any inaccessible or invisible angles or corners. For nine subscriptions at $1.50 each, we will give one of these excellent churns, [or, supply one for $7.00], the receiver to pay freight, in either case.

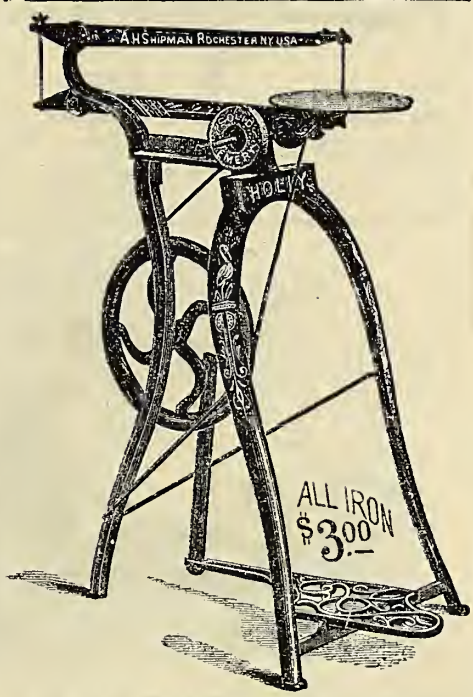
**No. 216.—Slide Vise.**—(Very convenient.)—



This vise is of iron, with steel face, and has a Clamp by which it can be attached to a table, and can be removed by turning a Thumb Screw. Width of Jaw, 1¼ inches. From MILLERS' FALLS CO., 74 Chambers St., N. Y. Price, $2. For three subscriptions at $1.50 each, we will present this Slide Vise [or we will supply one of them for $2.] Sent by mail, prepaid, in either case.

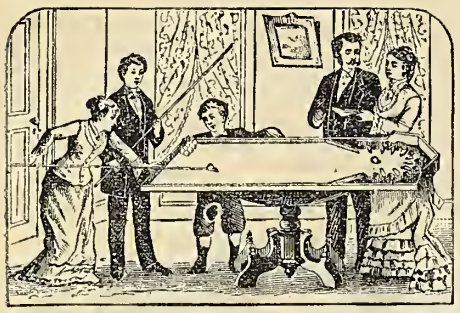



**No. 217.—Farm Wagon, full size.**—Every farmer wants a good, durable farm wagon, and in order that our readers may secure one without cost and with very little trouble, we have arranged with the STUDEBAKER BROS. MANUFACTURING CO., South Bend, Ind., to offer their justly celebrated Farm Wagon as a Premium. They are made of the very best material, and by the best workmen and improved machinery, so that if by accident any part of the wagon should be broken it can be replaced by a duplicate part that can not fail to fit. The wagons made by this firm are known the country over as among the best manufactured. On the receipt of 70 subscriptions, at $1.50 each, we will forward one of these wagons complete, including Top Box, Spring Seat, Whiffle Trees, Neck Yoke, and Wrench. [Or we will furnish one on receipt of the price, $75.] The receiver to pay freight from the manufactory. ☞ Many Farmers and Farmers' sons can secure this fine $75 Wagon, by gathering 70 subscribers in their own or adjoining neighborhoods during autumn, or during the winter.



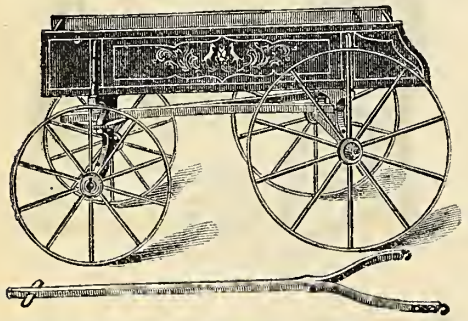

**No. 218.—"1880" Holly Scroll Saw.**—The Bracket Saw, like the Sewing Machine, has become almost a household necessity. We have made arrangements with the Manufacturer of the "1880" Holly Scroll Saw, which enable us to offer it as a Premium. From personal attention, and abundant testimony from others, we are warranted in commending this very highly, and it is one of the most valuable premiums that we have to offer for so small a cost. The manufacturer claims to have been the first to introduce cheap foot-power Saws to the trade; he makes this a specialty. The points of superiority of the "1880" Holly Scroll Saw are: A Saw Clamp which holds saw-blades perfectly rigid, enabling the operator to follow lines closely, and do fine work with great facility; it also prevents the saw-blade from running under when sawing thick stuff. A Straining Rod with Adjusting Screw, so that long, short, or broken saw-blades can be used. A ground and polished nickel-plated Table, which adds to the beauty of the machine, and on it the work can be readily moved around. A solid Emery Wheel, 2½ in. diameter by ½ face—this also makes a first-rate family Grind-stone, being always ready, and, as it runs with great speed, it grinds and polishes rapidly. A 20-inch swing allowing the sawing of a 40-inch circle, claimed to be the largest that can be done by any amateur saw ever made. A simple method of putting the saw together, only two bolts being used. Full instructions accompany each saw. A new and artistic style of painting in ultramarine blue, and decorated with gold and silver ornaments (in Japanese style), the arms ebonized and decorated the same. It is claimed by the manufacturer that in point of finish, this excels any of the very highest priced—the quality of its work is second to none—that it is by far the easiest to operate, and simplest ever placed before the public; any boy over 8 years of age can learn to use it; Ladies operate it with great success, and are delighted with its working. Its range of work is well nigh unlimited, running from the finest in Tortoise Shell to a 1½-inch board. In beauty of finish, capacity for working, ease and symplicity of operation, it is believed to be altogether unsurpassed by any machine of its kind. Manufactured by A. H. SHIPMAN, Rochester, N.Y. This useful Premium we will supply for *four* subscriptions at $1.50 each. [Or we will supply one for $3.00]. Expressage or freight from the manufactory to be paid by the recipient in either case.

**No. 219.—The Demas Lathe and Saw.**—*New and Improved.*—In this most useful Premium we offer an amateur Turning Lathe and Bracket Saw, both being thoroughly practical, and at a price that puts the machine within the reach of all. This machine is made by the manufacturer of the "Holly," Mr. A. H. SHIPMAN, Rochester, N. Y., a fact which at once commends it to the public. The same principles are followed as in the Holly, except that being heavier, it has more power for heavier work, but still does the very finest and most delicate. The saw can be thrown in and out of position in five seconds, and both saw and lathe can be run at the same time; the saw runs with great velocity, and will hold the finest blade for most delicate work, or with a coarse blade cut 2½ inch stuff; it has a nickel-plated Tilting Table. The bed of the Lathe is 2 ft. long by 5¼ in. wide and 2½ in. deep, built on the same principle as a machinist's lathe, with moulding at top or bottom; it has V-shaped ways for head and tail-block, possessed by no other amateur lathe, and all know its advantage; it will turn a block 5¼ in. diameter by 16 in. long—very large for an amateur lathe. The spindle for head-block is steel, nicely fitted up with collars. Spur-center, and screw for attaching different chucks, has cone-pulley with two lifts, one for light work, the other for heavy work. It has a solid Emery Wheel 3½ in. by ½ face, which acts as a family Grind-stone, and is also of great importance in roughing off work. Like many other points, this is novel with this manufacture; with this, a piece may be roughed off nearly as fast and as well as if it were driven by power—and work can be done with this that would otherwise be almost impossible. The tail-block has steel spindle with balance ball handle, for adjusting, and a knurled set screw for holding in position; it has double rests, one 4-in. for short, and one 12-in. for bedstead stuff, croquet handles, etc.; these rests are adjustable in every conceivable position. It has a heavy balance-wheel with two grooves, and is mounted upon two well shaped and braced sides. When all set up, it is claimed that it makes the largest, most powerful, and while in operation the most steady Amateur Lathe and Saw in the market. Its combination of chucks are novel, and are only furnished with this machine. And with the Illustrated Manual which accompanies each will be found such full instructions as will enable almost any one to become a professional in both turning and sawing. The price of this most valuable and useful premium is only $8.00. We will present one complete for ten subscribers sent to us at $1.50 each.—[Or we will supply one for $8.] The freight in either case to be paid by receiver.



**No. 220.—Billiardette.**—The above engraving represents this fascinating game. Size of the board is 5 ft. 10 inches by 2 ft. 1 inch. Send your address on a Postal to this office for full descriptive circulars.

No. 1 is very neatly gotten up, and is an ornament for any room. There are ten balls and one cue put up with every table, together with printed instructions. We will present it for 7 subscriptions, at $1.50 each, [or supply it for $5.00]. No. 2 is of the same size as the above, but is made of *Fine Black-walnut*, the surface covered with *Extra Fine Billiard Cloth*, and the balls are of *Zugello*. We will present it for 10 subscriptions, at $1.50 each. The board being quite light, it can be placed on an ordinary table, and when it is not in use, it can be put away in a very small space, or be set up against the side of the room. We send one complete for $8. Each Board goes packed in a stout box. Freight to be paid by receipient.



**No. 221.—"Our Boys'" Wagon.**—For the use of Boys from 6 to 15 years of age. The bed is 2 ft. 8 in. long, 1 foot 3 in. wide, and 5 in. deep. The wheels are all iron, the spindles also of iron. It is finely painted, a first-rate and handsome wagon, and will carry a weight of 400 to 500 lbs. on a level road. Made by the SILVER & DEMING M'F'G Co., Salem, Ohio. Presented for only 10 subscriptions, at $1.50 each, [or we supply one for $8.] The freight from the factory paid by receiver.

**No. 222.—Boy's Wagon.**—Just the thing for the active little "drivers" at home. This Wagon has iron axle, and heavy round tire wheels, painted and ornamented with bright colors, has hub caps and seat, with 28-inch body. From C. W. F. DARE, 17 Cortlandt St., New York. A

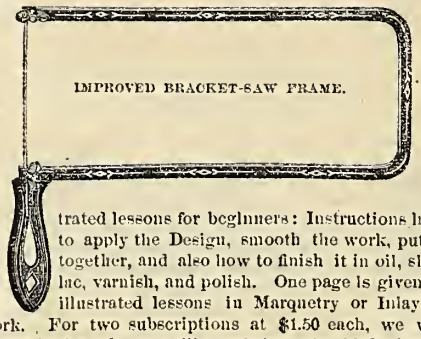
Premium 222

father, mother, or older brother or sister ought to easily collect the 6 subscribers which will get this.—[Or we will supply one for $4.50.] Receiver to pay expressage.

**No. 223.—Drum.**—Made of bent-Ash, Sheepskin heads, size across heads 12 inches, varnished and ornamented, and sticks. It is a very good Drum. From same firm as No. 222. Two subscriptions, at $1.50 each, will secure this [or we will supply it for $1.25], the expressage to be paid by the recipient in either case.

**No. 224.—Pocket-Book.**—Made of American "Russia" leather, with patent expansion bottom and coin pocket. From same firm as No. 30. Two subscriptions at $1.50 each will secure this premium, post-paid, or we will send one, post-paid, for the price, $1.50].

**No. 225.—Improved Bracket-Saw Outfit.**—(*See engraving, top of next column.*) This fine "*Improved Outfit*" consists of: 1 Beautiful Box; 1 *Steel* Saw Frame, Japanned and Finely Ornamented; 50 Bracket and Ornamental Designs; ½ Doz. Steel Saw Blades; 1 Brad Awl; 1 Piece Sand Paper; 85 Miniature Designs, of full size, with a price list; 1 Manual of Instructions, 12 pages, Illustrated, giving description of all tools and woods used in Bracket Sawing; Five illustrated lessons for beginners: Instructions how to apply the Design, smooth the work, put it together, and also how to finish it in oil, shellac, varnish, and polish. One page is given to illustrated lessons in Marquetry or Inlaying work. For two subscriptions at $1.50 each, we will mail this *free*; [or we will supply it, *post-paid*, for $1.18.]



IMPROVED BRACKET-SAW FRAME.

**No. 226.—Bracket-Saw Drill, No. 1.**—A very useful little tool. The Drill Stock, and Six Drill Points, and Wrench, are packed in a box. For only 2 subscribers at $1.50 each, we will mail the Drill post-paid, [or supply it to any one, post-paid, for $1.18.]

**No. 227.—Mens' Tool Chest.**—Made of ash, and trimmed with black-walnut, with tray divided into compartments, and contains Smooth Plane, Jack Plane, Claw Hammer, Chisel, Hand Screw, two Files, Box-Wood Rule, Compasses, Drawing Knife, Nail Set, Chalk, Line Reel, Screw Driver, Plyers, Brace, two Auger Bits, Centre Bit, Gauge Bit, Pincers, Brad Awl, Gimlet, Pencil, and Crayon. There is no better investment than that made in securing a supply of handy tools for the thousand and one little jobs that are continually coming up. From E. I. HORSMAN & Co., 80 and 82 William St., New York. Price, $8.00. Nine subscriptions, at $1.50 each, will secure this. [Or we will supply it for $8.] The recipient to pay expressage in either case.

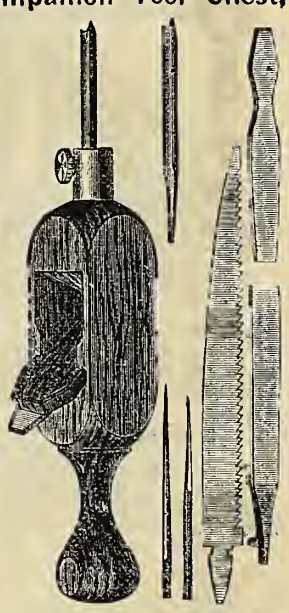
**No. 228.—Boy's Tool Chest.**—This Chest has 21 assorted tools, in a neat hinged-lid box, made of ash, with walnut mouldiug. Just the thing to encourage the mechanical genius in boys. Made by E. I. HORSMAN, 80 and 82 William St., New York City. Will be given for 4 subscribers at $1.50 each, [or supplied for the price, $2.50.] The receiver to pay expressage.

**No. 229.—Boy's Tool Chest.**—Still larger than No. 228 and from same maker. This contains *thirty-two* tools, and will be a fine present for any boy. It will be given for 6 subscribers at $1.50 each, [or we will supply one for $5.00.] Recipient to pay the expressage.

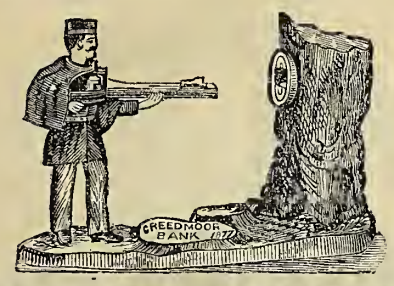
**No. 230.—Tammany Bank.**—This is a good substantial Bank. The man holds his hand to receive the coin, and when placed in it, the weight causes him to drop the coin into his pocket, which touches a spring, and he makes a bow. From same firm as No. 23. Two subscriptions at $1.50 each, secures this [or sold for $1.00]. Recipient to pay express charges. (The Tammany Bank weighs 32 ounces.)

☞ If to go by mail, send us 32 cents for postage & packing.

**No. 231.—Companion Tool-Chest, No. 1.**—This combination is well adjusted, and it is a convenience for the Family, Store, and Workshop.—It combines: A Rosewood Plane; One Gouge; One six-inch Box-wood Rule; One Medium Chisel; One inch Cutter, used also as a Chisel; One Screw Driver; One Saw; One Awl; One Gimlet. These tools are all made from the best cast steel. The chuck is beautifully Nickel Plated. It will hold a tool as small as a pin head. They are packed in a handsome box. For 2 subscribers at $1.50 each, we send this *free*; [or supply it to any one, and send it, post-paid, for $1.50.]



It is a very handy combination for occupying so little room and for so small a price, and may well be obtained by any one who has not the same tools in some other form.

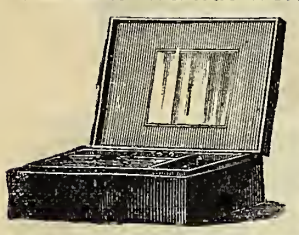



**No. 232.—Creedmoor Bank.**—This is quite an ingenious affair. The man's head moves forward, you draw back the spring in the gun, then place a coin in front of the spring, touch the right foot, and the gun shoots the coin into the stump and rings a bell. From same firm as No. 235. Two subscriptions at $1.50 will secure this [or we will supply it for $1.25), the recipient to pay express charges in either case. (Weighs 50 ounces.)
☞ If to go by mail, send us 50 cents for postage & packing.

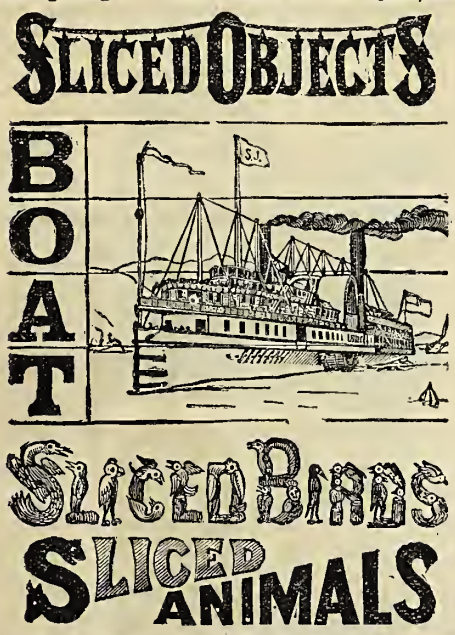
**No. 233.—Portable Writing Desk.**—Always handy, especially for the young folks. Closed, it is a 13-inch square black walnut desk, with gilt ornaments. From C. W. F. DARE, 47 Cortlandt St., New York City. Two subscribers at $1.50 each will secure this. [We will supply one for $1.25]. Receiver to pay expressage.

Premium 233—Opened.

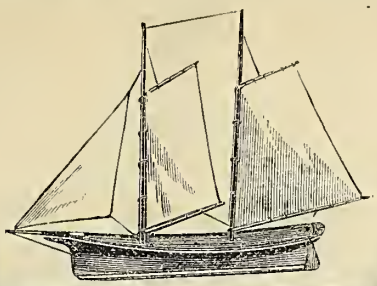
**No. 234.—Walnut Work Box.**—A pleasing gift for a young Miss. It is a 12-inch solid walnut Box, cushion, etc., inside velvet finish. From same manufacturer as No. 233. Two subscriptions at $1.50 each will secure it. [or we will supply it for the price, $1.15.] Receiver to pay expressage in either case.



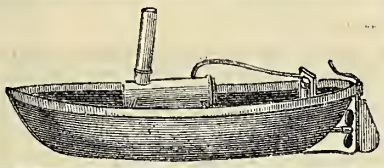
**No. 235.—Sliced Objects; Sliced Birds; Sliced Animals.**—These pleasing, dissected puzzles, or "sliced" objects, etc., are designed to attract and interest the little folks, as they invariably do, and at the same time help them in learning to spell. The engraving of a "Boat," shows how the objects, animals, etc., are divided into sections. They are very popular with children, as they are got up in attractive style. From E. G. SELCHOW & Co. The "*Objects*," or "the *Birds*," or the "*Animals*," will be presented for only one new subscriber at $1.50 [or for 50c.]. Name the one desired.
☞ If to go by Mail, send us 15 cents for postage & packing.




**No. 236.—"Co-Bang."**—The new East India parlor game. It is pronounced by many, the best parlor game of the day. Directions for playing it, accompany each one. From same firm as No. 235. Presented for 2 subscribers at $1.50 each, [or we will supply it for $1.00.]
☞ If to go by Mail, send us 15 cents for postage & packing.



**No. 237.—Boy's Yacht.**—This Yacht is 18 inches long, Schooner rigged, fine model, and nicely painted and varnished. From E. I. HORSMAN, 80 and 82 William St., N. Y. Three subscriptions at $1.50 each, will secure this [or we will supply it for the price, $2.50].



**No. 238.—Steam Propeller.**—This is a genuine little Steam-Boat, with Boiler and Engine. The hull, boiler, lamp, smoke-stack, steam-pipe, propeller, rudder, etc., are made of brass, and it can be operated in a tub, pond, or small lake. It is 9 inches long. From same firm as No. 235. Price, $2.00. Three subscriptions at $1.50 each will secure this [or we will supply it for $2.00].
☞ If to go by mail, send us 12 cents for postage & packing.

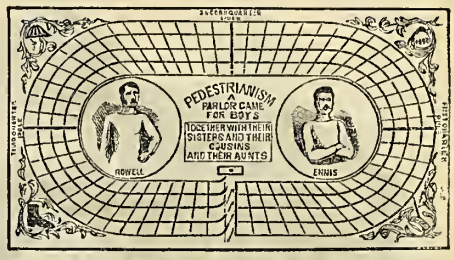
**No. 239.—Vignette Authors.**—This game consists of 72 cards, *each card* having a handsomely engraved portrait of an author, his name, and three of his works. The cards are finely ornamented with flowers, and are a new style. From E. G. SELCHOW & Co., 41 John St., New York. We give them for one *new* subscriber at $1.50.
☞ If to go by Mail, send us 10 cents for postage & packing.

**No. 240.—Citadelle—A Pleasing Parlor Game.**—Size of Board, 10×38 inches, with Balls, Cues, etc. Each player has five turns in sending the ball against the Citadel. The most accurate marksman will score the highest number of points and win the game. WARNER & Co., Northampton, Mass., are the makers. Only 2 subscriptions at $1.50 each, will secure this Game; [or we will supply one on receipt of $1.00]. Expressage to be paid in either case by Receiver.

**No. 241.—Parcheesi.**—This game is designed so plainly and attractively that it is quickly comprehended by children, and also excites interest in the oldest players. It is bound in durable, handsome paper, with 8 dice, 16 brass-bound counters, and directions for playing. From E. G. SELCHOW & Co. We present it for 2 subscribers at $1.50 each; [or supply it for $1.50.]
☞ If to go by Mail, send us 15 cents for postage & packing.

**No. 242.—Box of Dominoes.**—Made of Patent Embossed Blackwood, with light eyes; warranted unbreakable. From same firm as No. 30. Price, 60c. One *new* subscription, at $1.50, will secure this, post-paid. [Or we will send a box post-paid for 60 cents.]

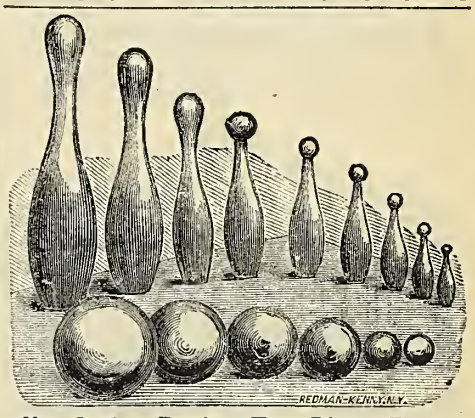
**No. 243.—Eagle Soap Bubble Toy.**—It would be hard to find the boy or girl who has never enjoyed "blowing soap bubbles." Here is a Toy invented to help the little folks in this operation. It is claimed that 300 bubbles can be blown without refilling. *Four* of these toys will be given for this Premium, and any child can readily get two subscribers, at $1.50 each, and thus secure one Toy for himself, and have three remaining to give away: [or we will send four of them for $1]; all post-paid. Directions accompany each one. From E. W. Bliss, No. 34 Barclay Street, New York.




**No. 244.—Pedestrianism.**—A very fine new Parlor Game for boys, and their Sisters and their Cousins and their Aunts, and their Parents too. It is wanted in every family. Two, three, or four persons may enter the race represented by this game. The rules and conditions of the game are distinctly printed on the face of it. This game is a most interesting one, both to players and spectators, and though but recently introduced, it is already in great demand, and will soon be in most families. We present it post-paid for 2 subscriptions, at $1.50 each. [Or we will send it post-paid for $1.25].

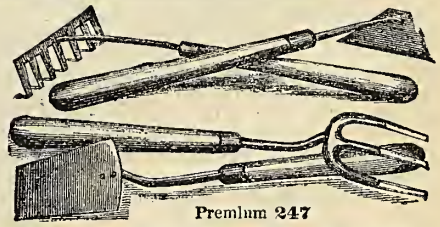
**No. 245.—Backgammon Board.**—One of these affords recreation and amusement in a family. The style we offer has gilt squares, and is furnished with Checkers, Cups, and Dice. 2 subscriptions at $1.50

each will secure this Premium. From E. G. SELCHOW & Co. [We will supply one for $1]. Receiver to pay expressage.]
☞ If to go by mail, send us 20 cents for postage & packing.




**No. 246.—Parlor Ten-Pins.**—These are made of Rock Maple, painted and varnished; length of pin, 9¼ inches. From same firm as No. 237. Two subscriptions at $1.50 each, will secure this [or we will supply it for $1.00], the recipients to pay express charges.

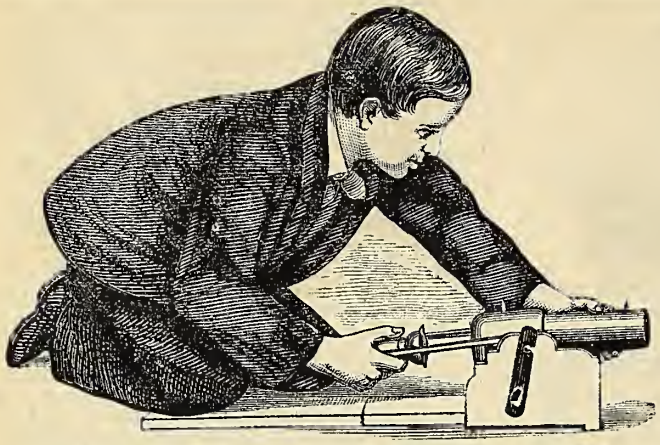
**No. 247.—Moore's Floral Set.**—A complete set of **Ladies' or Children's Garden Tools,** for cultivating flowers, consisting of a *Floral Hoe*, *Spade*, *Fork* and *Rake*. Made of the *best steel and iron*, with finely polished *hard-wood* handles, light, durable, and highly finished, each set inclosed in a box. Very convenient in garden or greenhouse. They are *useful*, pleasing toys for the little folks. Presented for

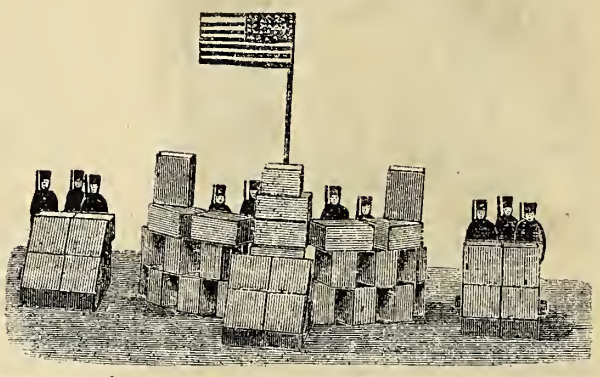


Premium 247

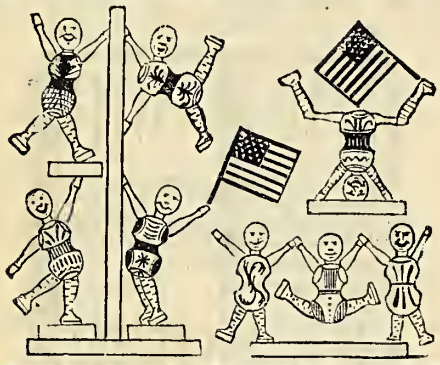
*only* 2 *subscribers*, at $1.50 each. Better get more subscribers for more sets, as half a dozen sets or so will come together cheaply as freight. Made by the MOORE MANUFACTURING Co., Kensington, Conn. [We supply one set for $1.00.] Receivers to pay expressage.
☞ If to go by Mail, send us 25 cents for postage & packing.

Premium 251





**No. 248.—Crandall's New Acrobats.**—Most brilliant in costume, and full of fun and frolic. The "New" Acrobats are a great improvement upon the old style which created such an excitement among the little folks. These are among the most fascinating and ingeni-



ous toys ever invented. The hundreds of figures which can be made with the pieces in a single box is limited only by the ingenuity of the operator. For one *new* subscription, at $1.50, we will present a box and send it post-paid. [Or we will send a box, post-paid, for 65 cents.]

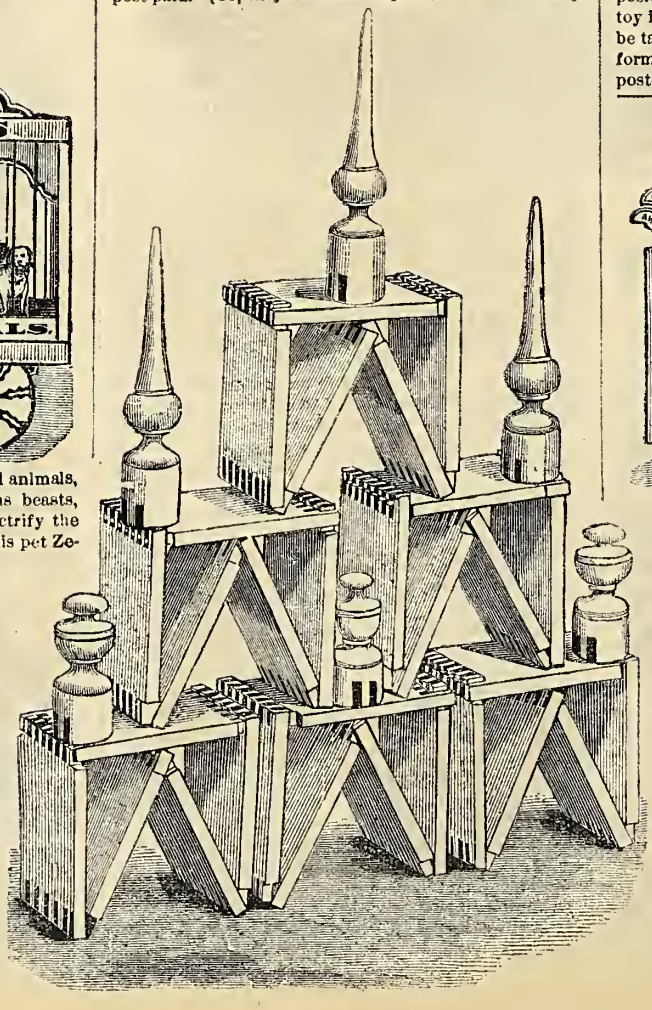
**No. 249.—Crandall's Performing Animals.**—Mr. C andall calls this "The Greatest Show on Earth." On careful observation it will be noticed that the Exhibition is under the special charge of the famous

clown, Mr. Merryman, the trainer of these wild animals, whose astonishing power over these ferocious beasts, and whose fearless management of them, electrify the beholder. He is accompanied in the cage by his pet Zebra, Lightfoot. This toy, called the Performing Animals, combines so many attractions that it is justly regarded as one of Crandall's very best. The sides of this car can be lowered over the wheels, thus forming a square box for packing. Only four subscriptions at $1.50 each, will secure this. [Or we will supply it for $3.00.] Expressage to be paid by receiver in either case.]

**No. 250. — Crandall's Improved Building Blocks** (No. 3) furnish a most attractive amusement for children. Churches, Dwellings, Barns, Mills, Fences, Furniture, etc., in almost endless variety, can be built with them, and *the structures remain so firm as to be carried about.* For developing the ingenuity and taste of children *they are unequaled.* The Blocks are put up in neat boxes accompanied by an *Illustrated Sheet* giving various de-

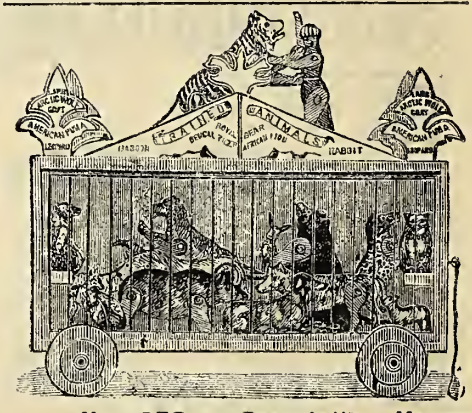
**No. 251.—Crandall's Heavy Artillery.**—The greatest amusement of the age! Recreation *at home* for all ages, and for all seasons! Crandall's Heavy Artillery is made up of a large Cannon, complete, which throws a 1¼-inch Rubber Ball to the distance of 30 feet or more, and Sixty Blocks (Red, White, and Blue), to build up Fortifications; also a Company of Soldiers, with Officer and Flag, to Garrison the Fort. The Game is to beat down the Fort by the use of the Big Gun, and hit the Soldiers, Flag, etc., each of which counts one to five, in making up a score. One can use it alone for artillery practice; and two or more can use it in competition, the same as in target practice, or Ten-pins, or Croquet, or Billiards, for all of which it is a good substitute, to be used at home, in any room, and at any time. Rules, Illustrations of a variety of Forts, etc., accompany each box containing the set, and the box is 18 inches long, 6 inches high, and 8 inches wide. We will present this for four subscriptions at $1.50 each. [Or, we will supply it for $3.00.]—The expressage to be paid by the receiver.

signs of buildings, etc. The engraving below, shows a few of the pieces taken from the box, and put together in a simple form. Every piece fits every other piece, and when joined at the ends, by pressing them together, they hold very strongly by simple friction, and at any angle. The pieces are of various forms, and can be set up in a thousand and one combinations, affording lasting and interesting occupation for a child, and even for grown-up people. A box of these will be presented for two subscriptions at $1.50 each, and sent post-paid. [Or, they will be sent post-paid, for 90 cents].



**No. 252.—Crandall's Donkey and Rider.**—This is a most comical and pleasing Mechanical Toy, being a good specimen of Barnum's Tricky Mule. When drawn around, the Mule seems to be trying to throw its Dusky Rider, who assumes various grotesque

positions, and has a lively time to keep his seat. The toy is strongly made, of wood, beautifully painted; can be taken apart and packed in the box on which it performs. One *new* subscription, at $1.50, secures this, post-paid. [Or we will mail one, post paid, for 70 cents.]



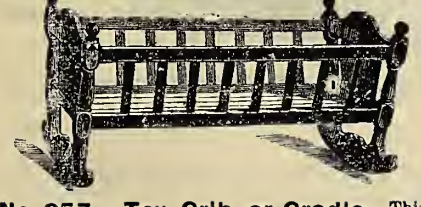

**No. 253. — Crandall's Happy Family.**— A splendid Invention of C. M. Crandall.—The *fifteen* animals, with their keeper, are well made, strong, durable, and wonderfully true to nature. They can be arranged in an endless variety of positions and combinations, producing the most vivid and startling effects. When not in use they can all be packed away in the box, which is neat and strong; when the wheels alone are adjusted, the owner has a *nice wagon;* when the ornaments are placed in position—a beautiful cage, or travelling show; and when the animals are added to this, and set up, as any wide-awake child can arrange them, the effect is remarkable! It is not only a "Happy Family" itself, but carries the spirit of happiness into every family where it goes, filling the heart of its fortunate young possessor with delight. No one knows better than C. M. Crandall just how to provide what will please the Little Folks. For 3 subscriptions, at $1.50 each, we will present this attractive combination. [Or we will supply one for $2.00.]—Expressage paid by receiver.

**No. 254.—Crandall's Sectional A B C Blocks.**—A beautiful thing for little scholars. They learn while they play. All the letters of the Alphabet can be made with this set of Sectional Blocks. The ingenuity of the young operator is developed, and, while placing together the various sections of these attractive blocks, the little boy or girl unconsciously learns the Alphabet. Many picasing structures can also be made by joining the pieces in various ways. The blocks are very brilliantly colored with fine paint, and are made strong and durable. A handsome illustrated Chart goes with each box, and adds brilliancy to the toy. Two subscriptions at $1.50 each, will secure this, post-paid. [Or we will supply a box, post-paid, on receipt of $1.00.]

**No. 255.—Crandall's Two Jolly Blacks.**—Fun and frolic. This is a Mechanical Toy without clock-work. It runs on four wheels, and, when set in motion, the figures, which are brightly colored, with jointed limbs, perform what may well be called a jolly dance. The whole toy is very strongly made. When not in use the figures can be packed in the box on which they dance. One *new* subscription at $1.50 secures this, post-paid. [Or we will send it, post-paid, on receipt of 70 cents.]

**No. 256.—Crandall's District School.**—This very amusing group of teacher and scholars in the "district school," will delight every Child, and Man and Woman too. The grave "Master," seated by the desk, with his "whisking stick"; the boys and

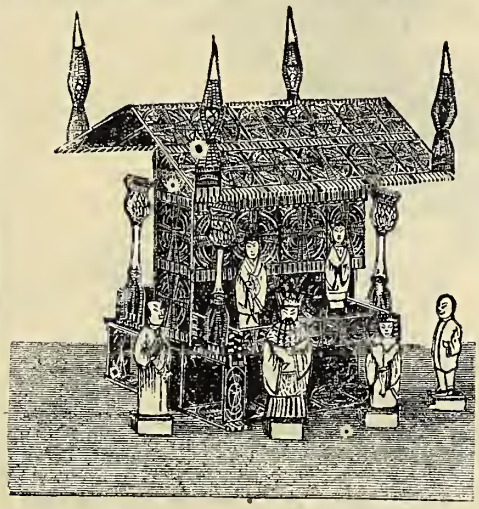
girls with their *books*; the "Little Lamb" that has followed Mary to school; the "Dunce" and his cap, and the altogether comical appearance of the whole company, make this one of the most attractive toys of Crandall's invention.—Two subscribers at $1.50 each, will secure a box, postage prepaid. [We send one, post-paid, for $1.20.]



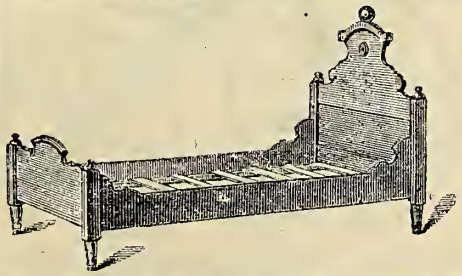
**No. 257.—Toy Crib, or Cradle.**—This is made of Black Walnut, with Rockers, handsomely finished, strong, and durable. Length, 28 inches; width, 13 inches. It can be taken apart, and packed together. From same firm as No. 274. Price $1.75. Three subscriptions, at $1.50 each, will secure this. [or we will supply it for the price, $1.75]. Expressage to be paid by recipient.

**No. 258.—Crandall's Lively Horseman.**—This Mechanical Toy has no clock-work, and performs without winding up. It has all the features of a Circus Rider going through the wonderful feats of that profession. The Horse and Rider are of wood, finely painted. Can be taken apart and packed in the box on which it performs. A child can draw it around without any danger of breaking it. One *new* subscription, at $1.50, secures this, post-paid. [Send one, post-paid, for 70 cents.]

**No. 258½.—Crandall's Chinese Blocks.**—In this most attractive combination, Mr. Crandall gives us the original Building Blocks, with an entire Chinese Family, the various blocks and figures be-



ing brilliantly colored. With a single Box, which contains a Set, one can build Chinese Houses, Palaces, Pagodas, Gardens, etc., etc. Thousands of structures of the Chinese style can be made with a Box of these fascinating blocks and figures. Two subscriptions at $1.50 each, will secure this *free*, carriage pre-paid to any part of the United States. [Or we will send a box anywhere in the United States, prepaid, on receipt of $1.25.]



**No. 259.—Toy Folding Bedstead.**—This is made of Black Walnut, with carved ornaments. Size, 15½×22 inches. It can be taken apart and packed together. From same firm as No. 274. Two subscriptions, at $1.50 each, will secure this post-paid [or we will supply one, mailing it pre-paid, for the price, $1.25].

**No. 260.—Girl's Polished Metal Tea Set.**—This consists of Tea-pot, Sugar Bowl, Milk Pitcher, six Cups and six Saucers, six Teaspoons and Sugar Tongs, and is very strong and durable. From same firm as No. 72. Two *new* subscriptions, at $1.50 each, will secure this. [Or we will supply the set for $1.50.] ☞ If to go by mail, send us 20 cents for postage & packing.

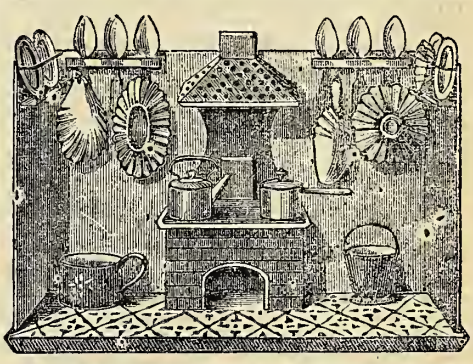
**No. 261.—Girl's China Tea-Set.**—This consists of six Cups and six Saucers, six Plates, Tea Pot, Milk Pitcher, and Sugar Bowl, handsomely decorated in gilt and colors, packed in a box. From same firm as No. 72. Four subscriptions at $1.50 each, will secure this as a premium, [or we will supply the set for the price, $2.50], the expressage to be paid by the recipient.

**No. 262.—Girl's Wash Set.**—This is composed of six pieces, viz.: Washboard, Wringer, Pail, Clothes-horse, Scrub-brush, and brass-bound Tub 10 inches in diameter. From same manufacturer as No. 274. One *new* subscriber at $1.50 will secure it. [Or we will supply it for the price, 75 cts.] Receiver to pay expressage. ☞ If to go by Mail, send us 20 cents for postage & packing.

**No. 263.—Doll Perambulator.**—This has 9 and 12-inch wheels, painted, varnished, and ornamented, large sized body enamelled cloth Seat, with Calash Top. From same firm as No. 274. Two subscriptions sent, at $1.50 each, will secure this [or we will supply it for $1.25]. The expressage to be paid by the recipient.

**No. 264.—Fine Wax Doll.**—This is handsomely dressed, eyes open and shut, and has curly hair. Length, 17 inches. From same firm as No. 72. Sending two new subscriptions, at $1.50 each, will secure this Doll as a premium. [Or we will supply it for $1.50.] ☞ If to go by Mail, send us 12 cents for postage & packing.

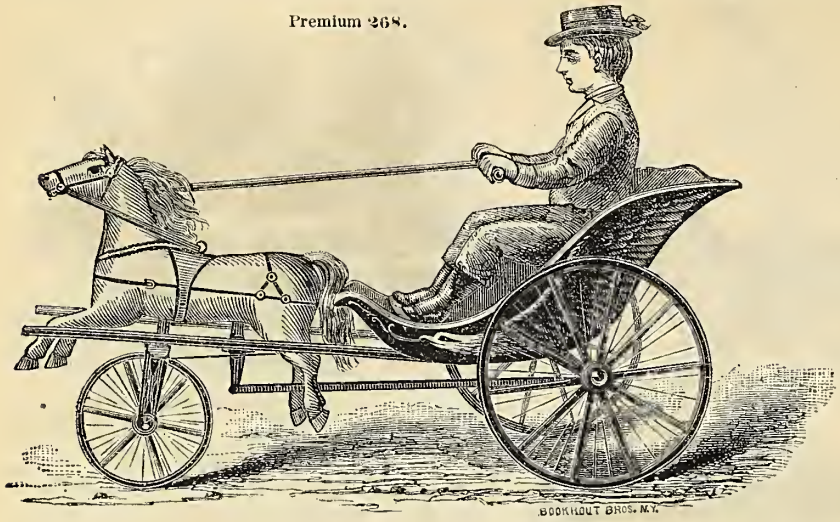
**No. 265.—Doll's Kitchen Set.**—This contains a variety of articles, such as Pans, Kettles, Coffee-Mill, etc., etc. Made of tin, and packed in a box. From same firm as No. 72. Two subscriptions at $1.50 each, secures this, post paid [or we supply it, post-paid, for $1.]



**No. 266.—Doll's Tin Kitchen.**—This is made of Tin, painted, and contains Stove, Pans, Pail, Spoons, etc., etc. A fine Toy. From same firm as No. 72. Sending one new subscription at $1.50, will secure this as a premium, [or we will supply it for 75c.]. ☞ If to go by mail, send us 12 cents for postage & packing.

**No. 267.—Doll's Tin Kitchen.**—This is larger than No. 266, with more utensils. From same firm as No. 72. For two subscriptions at $1.50, we will present this as a premium, [or we will supply it for $1.25]. ☞ If to go by mail, send us 12 cents for postage & packing.

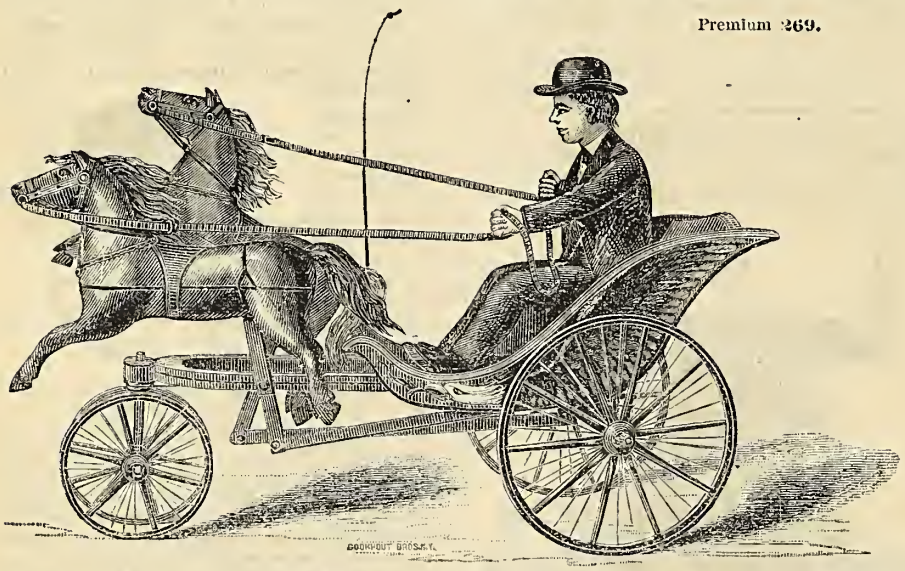
Premium 268.



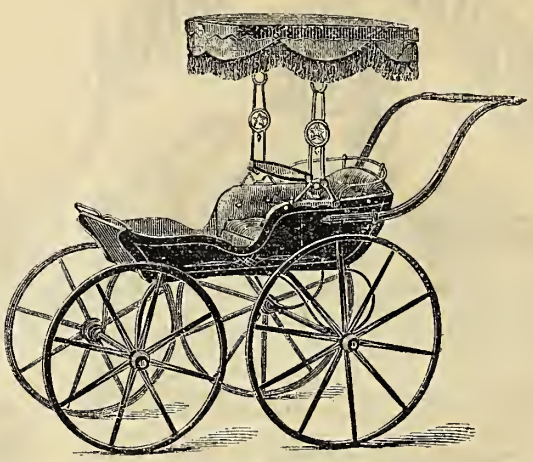
**No. 268.—"Tally-Ho."**—(Small size.)—This has one Horse, suitable for Boy or Girl from 3 to 10 years of age. It is strongly made, and easily managed, being propelled by a wooden rein or lever, so that the rider may either pull or push, and away he goes at a rapid rate, guiding the direction with his feet. From same party as the No. 274. Ten subscriptions, at $1.50 each, will secure this [or, we will supply it for the price, $9]. Expressage to be paid by the recipient, in either case.

**No. 269.—"Tally-Ho."**—(Medium size.)—This has *Two* Horses, suitable for Boy or Girl from 8 to 16 years of age. *A capital thing.* It is driven rapidly forward or backward, by simply pulling first one rein and then the other, guiding the carriage with the feet. It will greatly delight any boy or girl, even those pretty well grown up. From same party as the No. 274. Price $12. For sixteen subscriptions, at $1.50 each, we will present this [or we will supply it for the low price of $12]. Expressage to be paid by the recipient in either case.

Premium 269.



Premium 271-275.



**No. 274.—Tally-Ho Perambulator.**—The newest and by far the *best* for carrying a child out. The Top can be readily set upright, or backward or forward at any angle, to shut off the sun, and will stay firmly when set. Closely packed in the top, is a set of curtains, of which, one or more can be quickly let down, as wanted, at either, or both sides, and at the back. No. 274, has patent Valise Canopy Top. The Seat is upholstered with Enamel Cloth, the Axles are Iron, with Steel "C" Springs and Oval-tired Wheels, Handle-tips, Hub Caps. Length of body, thirty inches. Width across, twelve and a half inches. Size of front wheels, nineteen inches; hind wheels, twenty-two inches. Painted, Varnished, and Ornamented. From C. W. F. Dare, 47 Cortlandt St. N. Y. Nine subscriptions at $1.50 each, will secure this [or we will supply it for $7.50, which is a great reduction on the price hitherto, for the same quality]. The expressage to be paid by the recipient, in either case.

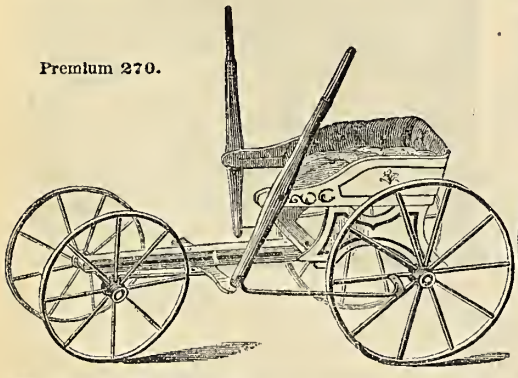
**No. 275.—Tally-Ho Perambulator.**—Same as the above, but of superior quality. Upholstered with Enamel Cloth, has carpet on the bottom, full length Seat-rail, Dash-rail, Handle-tips, and the Canopy Top will turn forward or backwards. The body is hung between two full "C" Springs, pivoted to the side, which produces a soft and easy motion. The Axles are of Iron; Oval Tires on wheels. Length of body, thirty-three inches. Width across, thirteen inches. Size of front wheels, twenty-one inches; hind wheels, twenty-four inches; handsomely Painted, Varnished and Ornamented. It is a most desirable article. From same firm as No. 274. Presented for 13 subscriptions at $1.50 each, [or we will supply it for the low price of $11.00]. The expressage to be paid by the recipient, in either case.

**No. 270.—Patent Four-Wheeled Propeller.**—This is strongly made, handsomely Painted and Varnished, Seat Upholstered in Enamel Cloth. Can be used by girls or boys from 5 to 16 years of age. From same firm as No. 274. Price, $7.00. Eight subscriptions at $1.50 each, will secure this [or, we will supply it for $7.00], the expressage to be paid by the recipient, in either case.

**No. 272.—Boy's Velocepede.**—(3 wheels), same as No. 271, Larger Size; two 24 and one 28-inch oval-tired Wheels. Suitable for boys from 8 to 12 years of age. From same firm as No. 274. Price, $7.50. Nine subscriptions at $1.50 each, will secure this [or, we will supply it for $7.50]. Expressage to be paid by the recipient.

**No. 276.—Perambulator with English Body.**—Same as the above, but of extra quality and finish, and sundry additions. This is upholstered in wool reps; has Scroll Spring and Valise Canopy Top, Silk Fringe, Supplemental Back to Seat, with Seat-rail, Silvered Hub Caps. The Axles are of Iron, Oval Tires on wheels, and Steel "C" Springs; handsomely Painted, Varnished and Ornamented. Length of body, twenty-eight inches. Width across, thirteen and a half inches. Front wheels, twenty-one inches; hind wheels, twenty-four inches. From same firm as No. 274. Seventeen subscriptions at $1.50 each, will secure this [or, we will supply it for the low price of $16.00]. Expressage to be paid by the recipient, in either case.

Premium 270.



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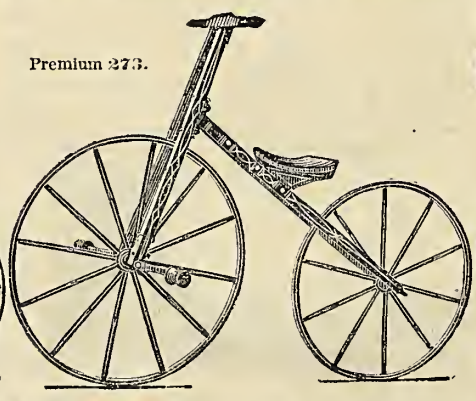
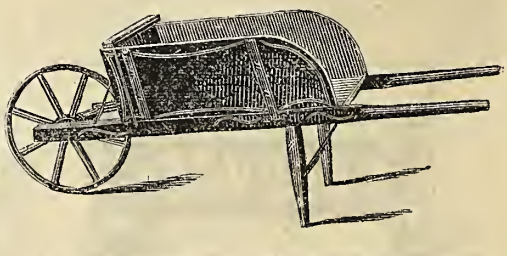
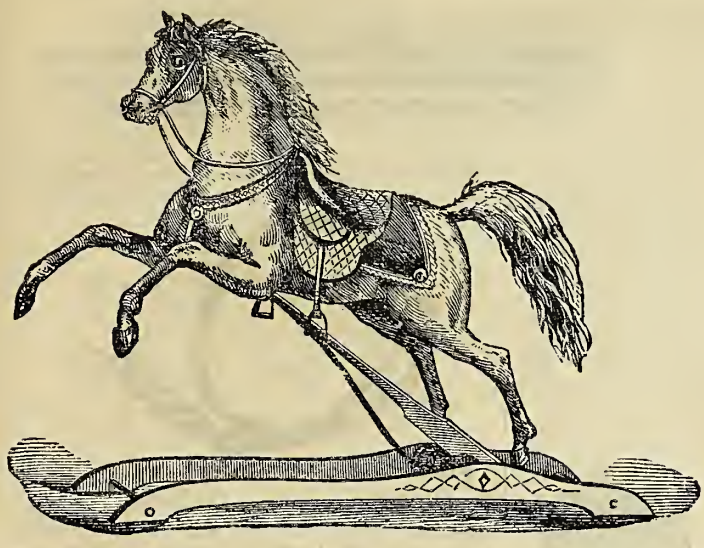




**No. 271.—Boy's Velocepede.**—(3 wheels), strongly made, has two 16 and one 18-inch oval-tired Wheels, Handle-tips, Leather Quilt Saddle, handsomely Painted and Varnished, suitable for boys from 4 to 6 years of age. From same firm as No. 274. Five subscriptions at $1.50 each, will secure this [or, we will supply it for $4.00], expressage to be paid by the recipient.

**No. 273.—Bicycle.**—This has a thirty-inch Wheel, Painted and Varnished, with bright Metal Castings, Saddle of the same metal, suitable for a boy from 10 to 16 years of age. From same firm as No. 274. Price, $8.00. Nine subscriptions at $1.50 each, will secure this [or, we will supply it for $8.00]. A Capital Present. The Expressage to be paid by the recipient, in either case.

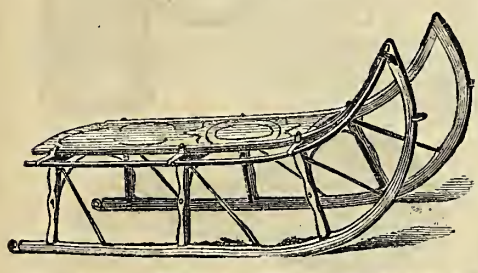
**No. 277.—Garden Wheelbarrow.**—This is well and strongly made, Painted, Varnished, and Ornamented. Length of Body, 4 feet; width, 16 inches; size of Wheel, 13 inches, and the Sides can be taken out, and can be used for gardening purposes. From same firm as No. 274. Three subscriptions at $1.50 each, will secure this [or we will supply it for $2.00]. The expressage to be paid by the recipient, in either case.



**No. 283.—Spring Horse.** — This has a body 7 × 7 inches, full shape, handsomely Painted, Varnished, and Ornamented, with Leather Saddle, Bridle, and Iron Stirrups. The rider by the motion of his body depresses and raises the horse very gracefully. Nine subscriptions at $1.50 each, will secure this [or we will supply it for the price, $7.50]. Expressage to be paid by the recipient in either case.

**No. 284.—Spring Horse.** — The same as No. 283, but larger; 8 × 8-inch body. Twelve subscriptions at $1.50 each, will secure this [or we will supply it for the price, $10.00]. Recipient to pay express charges. Numbers 283, 284 are supplied to us by C. W. F. DARE, 47 Cortlandt St., New York.

**No. 278.—Afghan, or Lap-Robe.**—This is made of colored Wools, 36×36 inches, suitable for Child's Perambulator. From same firm as No. 284. Two subscriptions, at $1.50 each, will secure this prepaid [or we will supply and send it post-paid for $1].

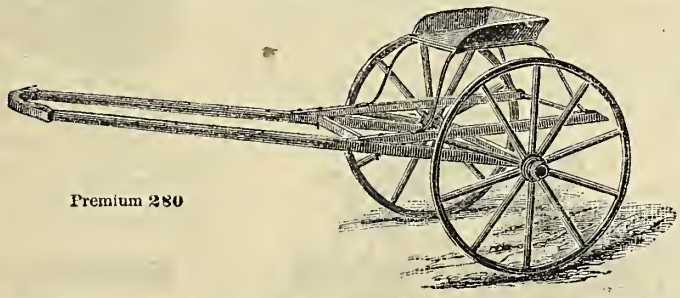


**No. 279.—Sleigh.**—This is made of Oak, ornamented and varnished, bright tin braced, arched Knees, and polished Runners. Length, 33 inches; width, 12 inches. Many a boy can secure this. From same firm as No. 284. Three subscriptions, at $1.50 each, will secure this premium, [or we will supply it for the price, $2]. Expressage to be paid by recipient.

**No. 285.—Nest of Toy Pails.**—These are made of Cedar, brass-bound, with brass wire handles, so that they are strong and durable, and serviceable to the little folks. Three sizes — 7-inch, 6½-inch, and 5½-inch. From same firm as No. 284. Price 75c. per nest. One new subscription, at $1.50 each, will secure these [or we will supply them for 75c.]. These are sent pre-paid by mail.

**No. 286. — Nest of Toy Tubs.** — These are made of Cedar, and brass-bound, strong and durable. Three sizes — 9-inch, 8-inch, and 7-inch. From same firm as No. 284. One *new* subscription, at $1.50 each, will secure this as a premium, [or we will supply them for 75c.]. Sent by mail, post-paid, in either case.

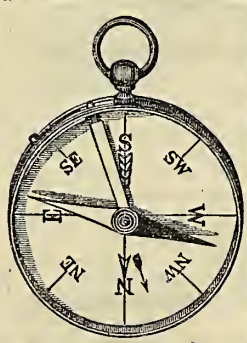
**No. 280. — Boy's Sulky.**—This is made of Ash, handsomely Painted and Varnished, with 24-inch Wheels, Iron Axles, and oval-tired Wheels; can be drawn by a dog or goat. From same firm as No. 284. Price, $5.00. For *six* subscriptions at $1.50 each, we will present this [or, we will supply it for $5.00], the expressage to be paid by the recipient, in either case.



Premium 280

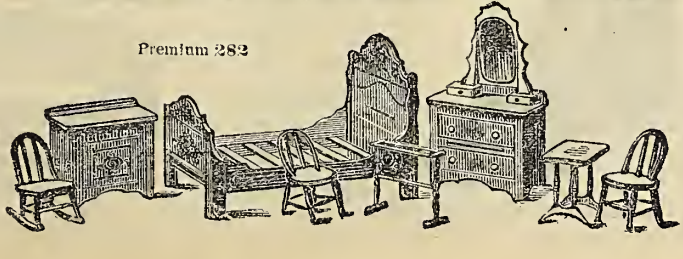
**No. 281. — Toy Trunk.**—Full Saratoga style, covered with imitation leather, with tray divided into compartments. Size 14 inches long, 9 inches wide, with Lock and Key, iron-bound and wood Fenders. From the same firm as No. 284. Three subscriptions, at $1.50 each, will secure this [or we will supply it for $1.75]. Too large to mail. Expressage to be paid by the receiver in either case.

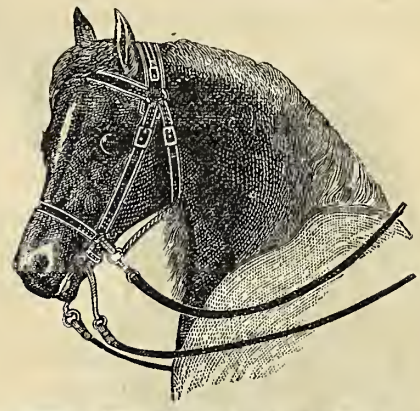
**No. 287.—Pocket Compass.** — Made of brass, open faced, glass covered, with jewel balance. Very useful, and can be easily carried in a pocket. Sent post-paid, for two subscriptions, at $1.50 each, [or for the price, $1.25.] From Hodgkins & Haigh, 298 Broadway, N. Y. (A pocket instrument to quickly give the points of compass at all times is very convenient. A very pretty one in gold case, for the watch chain, is offered in No. 4.)




**No. 282.—Toy Cottage Furniture.**—This is made of Chestnut, with Black Walnut trimmings, and consists of Bureau and Glass, Wash-stand, Towel-rack, Bedstead, Table, Rocking Chair, and two Chairs—eight pieces in all. Is strong and durable. From same firm as No. 284. Price $3. Four subscriptions, at $1.50 each, will secure this [or we will supply it for $3]. Expressage to be paid by the recipient in either case.

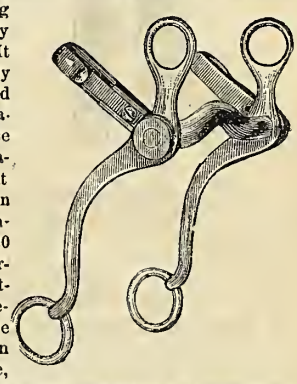
Premium 282





**No. 288.—Whitman's Halter-Bridle.**—Col. R. F. WHITMAN, late of the U. S. Cavalry, has invented a Halter-Bridle, that is commended by those who are familiar with the wants of such as ride horseback for business or pleasure. The accompanying engraving represents the Halter-Bridle ready for use. The bit is fastened to the lower rings in the head-stall, by snaps, which enable it to be detached in a second, leaving the horses mouth free to feed, yet secured to any hitching place by the halter-rein, as shown above. These Bridles are made of the best material, and are well worth the money asked for them. They have been adopted by the U. S. Army in General Orders, and are now "regulation." To enable our readers to secure this Bridle, we will, on the receipt of *seven* subscriptions at $1.50 each, forward one of them by express [or, will supply one for $5], the receiver in either case, to pay expressage.

**No. 289.—Whitman's Patent Bit.**—The accompanying engraving represents one of Col. R. F. WHITMAN'S improved riding bits. It is made of iron, with steel spring snaps, and heavily covered with tin. It can be used in any bridle, or five-ringed halter, and is admirably adapted for use about a farmer's stable. We will present two of these bits on receipt of two subscriptions at $1.50 each. [Or, will furnish one for 60c. post-paid]. If parties prefer, they can have their choice between a riding bit as above, or a loose-ring driving bit of same make, and same price. These have been adopted by the U. S. Army Board.



**No. 290.—Snaffle Bridle.**—This is made of Russet Leather, with Martingale, fancy ornaments and plated Buckles. From same firm as No. 296. Three subscriptions at $1.50 each will secure this. [Or we will supply it for $2]. Expressage paid by the recipient.

**No. 291.—Pelham Bridle.**—This has four Ring Port Bit, with Curb Chain, and two Reins. From same firm as No. 296. Seven subscriptions at $1.50 each will secure this. [Or we will supply it for $5]. Expressage to be paid by the recipient in either case.

**No. 292.—Weymouth Bridle.** — This has two Ring-Port Bit, and Snaffle, with double Head and double Rein. From same firm as No. 296. Nine subscriptions only at $1.50 each will secure this. [Or we will supply it for $7.00]. Expressage paid by recipient.

**No. 293.— Moseman's Single Harness.**—This is hand-made, with full nickel-plated Trimmings and Buckles, Fancy Pad, Cloth Under Saddle, and Half Check nickel-plated Bit. From the same firm as No. 296. Thirty subscriptions at $1.50 each will secure this. [Or we will supply it for the price, $30.00.] Expressage to be paid by recipient in either case.

**No. 294.—Heavy Farm Harness** (Double).—This is for general farm work. One and a half inch Trace, Open Top Collars, Wooden Hames, fancy painted and ornamented. From same firm as No. 296. Thirty-three subscriptions at $1.50 each will secure this without cost, except the delivery. [Or we will supply it for $35.00]. Expressage to be paid by recipient in either case.

**No. 295.—Buggy Harness** (Single).—This has nickel-plated Trimmings and Buckles, made of good Leather, strong and durable, suitable for Light Wagon. From same firm as No. 296. Only 17 subscriptions at $1.50 each, will secure this [or, we will supply it for $15], expressage to be paid by the recipient, in either case.

**No. 296.—Gentleman's Saddle.**—This is made of either Enamel or Hog-skin Leather, as desired. Quilted all over the Seat, and Knee Flaps and Thigh Puffs, with Roll on the Cantel; the Stirrup Leathers have a Quilted Safe. Two fine worsted Girths, with Nickel-plated Stirrups. From C. M. Moseman & Bro., 128 Chambers St., N. Y. Thirty-five subscriptions at $1.50 each, will secure this, [or we will supply it for $35], the express charges to be paid by recipient in either case.

**No. 297.—Gentleman's Saddle.**—This is a plain English Saddle, with covered buttons, two Girths, plated Stirrups, and hog-skin Seat. From C. M. Moseman & Bro., 128 Chambers St., N. Y. Seventeen subscriptions only at $1.50 each will secure this. [Or we will supply it for $15.] Expressage to be paid by recipient.

**No. 298.—McClellan's Officer's Saddle.**—This is made of Black Leather, and has a fancy Enamel Leather quilted Seat, with two Girths, and covered Stirrups. From same firm as No. 297. Twenty five subscriptions at $1.50 each will secure this very excellent Saddle. [Or we will supply it for $25.00]. Expressage to be paid by the recipient in either case.

**No. 299.—Ladies' Side-Saddle.**—This has three Horns, English style, imitation buckskin, ornamental quilted Seat, double Girths, Slipper Stirrup, full size flap with pocket. From same firm as No. 297. Twenty subscriptions at $1.50 each will secure this. [Or we will supply it for $20.] Expressage to be paid by recipient.

**No. 300.—Boy's Saddle.**—This is the same as No. 297, with the exception that the seat is quilted. From the same firm as No. 297. Fourteen subscriptions only at $1.50 each will secure this. [Or we will supply it for $12]. Expressage to be paid by the recipient.

**No. 301.—Carriage Whip.**—This is all Bone, Celluloid Handle, German Silver Ferrule, carved with Horse Shoe Ornaments. From same firm as No. 297. Eight subscriptions at $1.50 will secure this [or, we will supply it for $6.00]. Expressage paid by recipient.

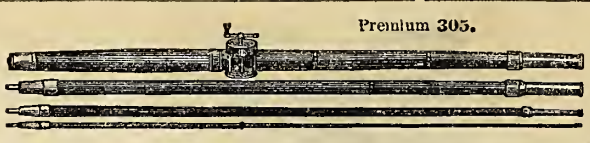
**No. 302.—Dog Whip and Call Combined.**—This is made of White Braided Leather, with Dog Call in Handle, neat and substantial. From same firm as No. 297. Two subscriptions at $1.50 each will secure this [or we will supply it for $1.50], can be mailed. ☞ If to go by Mail, send us 8 cents for postage & packing.

**No. 303.—One Pair Horse Blankets.**—These are square; all Wool; size 80 × 84 inches. Strap and Buckle with Fancy Heading. From same firm as No. 297. Twelve subscriptions at $1.50 each, will secure these good horse blankets [or we will supply them for $10], expressage to be paid by recipient, in either case.

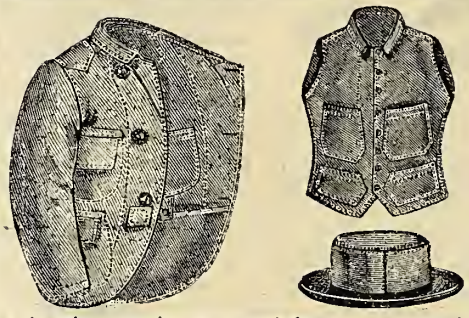
**No. 304.—One Pair Kersey Horse Blankets.**—These are all Wool, regular made, trimmed, cut, and fitted. From same firm as No. 297. Ten subscriptions at $1.50 each, will secure these without cost, except expressage [or we will supply them for $8]. Expressage to be paid by the recipient, in either case.

**No. 305.—Fishing Rod.**—Four pieces: Trout or Bait Rod; wound Handle, rosewood finish, hollow Butt, with extra lancewood Tip, with Reel, Guides and Butt Cap. From E. I. Horsman, 80 and 82 William St., N. Y. Eight subscriptions at $1.50 each, will secure this very excellent Fishing Rod. [Or we will supply one for the price, $6.] Expressage in either case to be paid by receiver.

Premium 305.



**No. 306.—Hunting Suit** (Thomson & Sons, 301 Broadway, N. Y.)—Coat, pants, vest, and hat. Made of extra quality duck (water-proof), dead grass color, equally serviceable for either summer or winter use. We believe this to be as good and as cheap a hunting suit as was ever offered American sportsmen. Coat, $4; pants, $2.50; vest, $2.50; hat, $2. We will warrant these goods to be all well made, buttons riveted on.—Rules for Measurement: Send breast measure and length of sleeve, from middle of back to wrist, with arm raised and bent, for coat; breast measure for vest; waist and inseam measure for pants; size of head for hat. Supplied



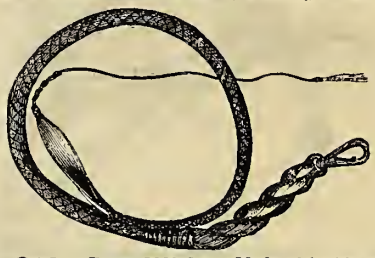
at the prices named, or presented thus: Coat for 6 subscriptions at $1.50 each; the Pants for 4 subscriptions at $1.50 each; the Vest for the same number, and the Hat for 3 subscriptions at $1.50 each. Or all of the four for 13 subscriptions at $1.50 each. Recipient to pay expressage.

**No. 307.—Thorne's Portable Cooker.**—Weight complete, 1 lb. This consists of Stove and four Screw Cap Burners; one Coffee or Tea Dish (capacity two cups); one Fry Pan; one Knife; Fork and Spoon; Spoon made to use for Coffee Dish lifter. Seven pieces packed in one box, 7¾×1½ inches. From Geo. N. Pierce & Co., Buffalo, N. Y. Two subscriptions, at $1.50 each, will secure this. [Or we will supply it for $1.] Will be sent by mail, post-paid, in either case.

**No. 308.—Thorne's Portable Cooker.**—Weight complete, 2¾ lbs. This is for two persons. It consists of the following articles: One Stove, one two-quart Coffee Dish, one Fry Pan, two eight-inch Dinner Plates, one Tablespoon (handle bent for ladle), two Knives, Forks, and Teaspoons. Sixteen pieces packed in one box, 8×4½ inches. From same firm as No. 307. Three subscriptions, at $1.50 each, will secure this convenient apparatus free. [Or we will supply it for $2.00.] Sent by mail, postpaid, in either case.

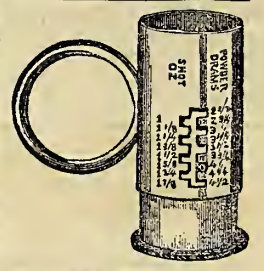
**No. 309.—Sporting Shoe** (Thomson & Sons, 301 Broadway, N. Y.)—Made seamless, with broad Scotch sole, low heel, English grained leather, either black or red, with or without hob nails. This shoe has been adopted by the Secretary of War for army use. Send size of boot or shoe worn. Presented for only 8 subscriptions at $1.50 each, [or supplied for the price, $7]. Receiver to pay the expressage.

[The following six Premiums are supplied to us by the well-known firm of Hodgkins & Haigh, 298 Broadway, New York, dealer in Guns, Hunting outfits, etc.]

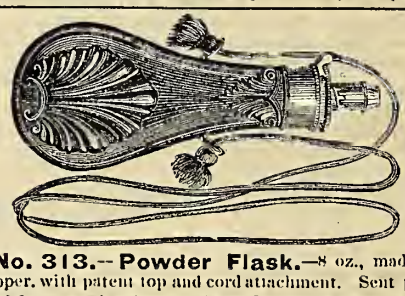


**No. 310.—Dog Whip.**—Made of double twisted leather, patent swivel; can be rolled up and carried in pocket or attached to coat or saddle. Presented post-paid for one *new* subscriber at $1.50, [or for the price, 75 cents.]

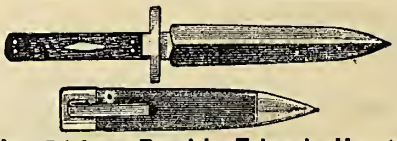
**No. 311.—Shot and Powder Measure.**—Made of Britannia, with ring handle and slides. Very convenient, and can be readily carried in the vest pocket. It has gauges for both powder and shot. Presented post paid, for 50 cents, or mailed, post-paid, for one new subscriber at $1.50.



**No. 312.—Shot Pouch.**—Holds 3 lbs., made of leather, with ring attachment for belt. Sent post-paid for two subscribers at $1.50 each [or for the price, $1.00].



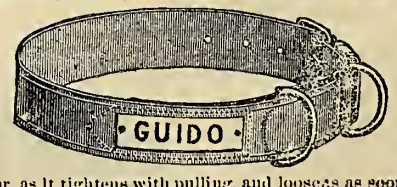
**No. 313.—Powder Flask.**—8 oz., made of copper, with patent top and cord attachment. Sent post-paid for two subscribers at $1.50, [or for the price, $1.50.]



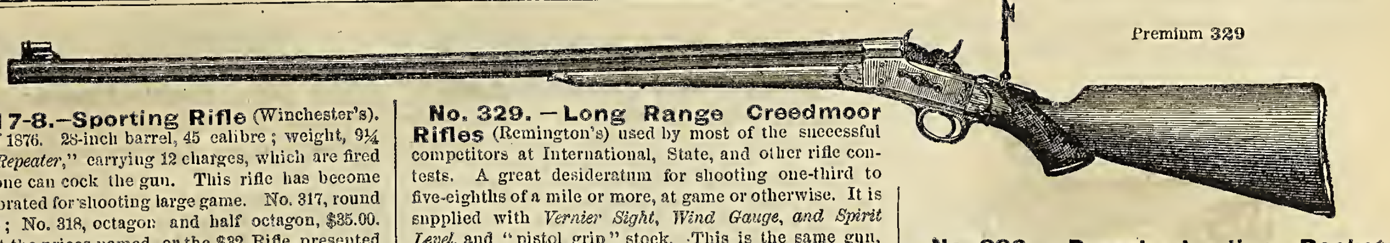
**No. 314.—Double-Edged Hunting Knife.**—Made by Joseph Rodgers Sons, Sheffield, England. Six-inch blade, best of steel, solid buck horn handle, in metal-bound leather case. Intended to be worn either in the belt or pocket. Presented post-paid for four subscriptions at $1.50 each [or for the price, $3].

**No. 315.—Dog Call or Whistle.**—Britannia metal, handsomely ornamented, with ring attachment. Sent post paid for 50 cents, or presented, post-paid, for one new subscription at $1.50.

**No. 316.—Dog Collar.**—Combination slip and straight Collar; heavy bridle leather; nickel-plated D buckles; name plate. Impossible for dogs to slip this




collar, as it tightens with pulling, and looses as soon as the strain is off. [From Thomson & Son.] Presented, post-paid, for two subscriptions at $1.50 [or supplied for $1.00].



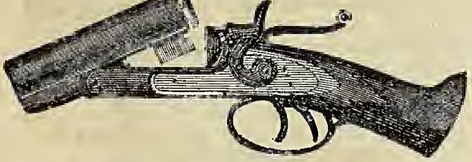
Premium 329

**No. 317-8.—Sporting Rifle** (Winchester's).—Model of 1876. 28-inch barrel, 45 calibre; weight, 9¼ lbs. A "*Repeater*," carrying 12 charges, which are fired as fast as one can cock the gun. This rifle has become justly celebrated for shooting large game. No. 317, round barrel, $32; No. 318, octagon and half octagon, $35.00. Supplied at the prices named, or the $32 Rifle presented for 30 subscriptions at $1.50 each; and the $35 Rifle for 33 at $1.50 each. Carriage of all Rifles paid by receiver.

**No. 319.—Sporting Rifle** (Winchester's).—Model of 1873. 24-inch barrel, 44 calibre; weight, 8¾ pounds; a "Repeater," carrying 15 shots. Price, round barrel, $25; octagon and half octagon, $27. Presented (round) for 25 or (octagon) 27 subscriptions at $1.50 each.

**No. 320.—Sporting Rifle** (Winchester's).—Model of 1866.—24-inch barrel, 44 calibre; weight, 9½ pounds; a "Repeater," carrying 17 shots. Price, round barrel, $22; octagon, $23. The round presented for 22, the octagon for 23 subscriptions at $1.50 each.

**No. 321.—Winchester's Carbine.**—Model of 1876.—22-inch barrel, 45 calibre; weight, 8¼ pounds; a "Repeater," carrying 9 shots. Price, $27.00. It will be presented for 27 subscriptions at $1.50 each.



**No. 322.—Double-Barrel, Breech-Loading, Central Fire Shot Gun** (Remingtons').—10 or 12 gauge, 28 or 30-inch barrel; weight, 8 to 8¾ pounds. Decarbonized steel barrels, using paper or brass cartridges, that can be reloaded many times; two dozen of which, and reloader (costing $3.60). and 500 primers, or caps (costing $1), are given with the gun; one of the finest guns ever offered the American sportsman, combining all the most desirable features of the best imported, together with some valuab'e improvements not found with any other. Price of gun, $40. Total, $44.60. We will supply it at this price, or will present the whole for 40 subscriptions at $1.50 each. Carriage paid by receiver.

**No. 323.—New Model Breech-Loading Duck Gun** (Remingtons').—30 to 32-inch, 10 gauge, weight 9¾ and 10 pounds, rebounding locks, top extension, rib fastening, walnut stock, decarbonized steel barrels. Supplied for the price, $50. Or presented for 45 subscribers at $1.50 each. Carriage paid by receiver.

**No. 324.—Revolver, Iroquois** (Remingtons').—Nickel-plated, seven shooter, steel barrel and cylinder, 22 calibre; weight, 7 ounces. Sent post-paid for $2.50, or presented for 4 subscriptions at $1.50 each, and sent post-paid. The best Revolver ever offered for the low price of $2.50.

**No. 325.—Revolver.—(The Southern).**—A very effective new Pistol; 32 Calibre, Five-Shooter, long Fluted Cylinder. Cylinder and Barrel best Cast Steel. Weight, 10 ounces. We present it for only 4 subscribers at $1.50 each, and mail it post-paid, for 12 cents extra. [Or, will send it post-paid for $3.00]. (This and the other two revolvers are supplied to us by G. A. Alford, 283 Broadway.)

**No. 326.—Remington No. 2 Revolver** (Smoot's patent).—Full plated, five shooter, three-inch barrel, 6¼ inches long, using 32 calibre cartridge. Mailed post-paid for $8.00; or presented and sent post-paid for 10 subscribers at $1.50 each.

**No. 327.—Improved Army Revolver** (Remingtons').—Central fire, six shots, 8-inch barrel, 13¼ inches long, 44 calibre; weight, 2 pounds. Loaded and shells thrown out without removing cylinder. Sent post-paid for the price, $18; or presented for 19 subscriptions at $1.50 each.—Sent post-paid.

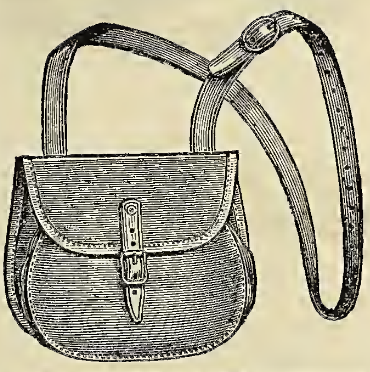
**No. 328.—Pocket Bull's-Eye Lantern.**—Throws a very strong light; can be carried easily in the pocket; hight, 6 inches; width, 3½ inches. Presented free of carriage for 2 subscribers at $1.50 each.

**No. 329.—Long Range Creedmoor Rifles** (Remington's) used by most of the successful competitors at International, State, and other rifle contests. A great desideratum for shooting one-third to five-eighths of a mile or more, at game or otherwise. It is supplied with *Vernier Sight, Wind Gauge, and Spirit Level*, and "pistol grip" stock. This is the same gun, or improved if possible, that cost us $108 not long ago. We will now present it for 75 subscribers at $1.50 each, or supply it for $80.00. Carriage to be paid by receiver.

**No. 330.—Sporting and Hunting Rifle—Breech-Loader** (Remingtons').—Sporting stock, plain open sights; 26-inch barrel, using 38 or 44 calibre rim fire. Supplied at the price, $30; or presented for 30 subscribers at $1.50 each. Carriage paid by receiver.

**No. 331.—Sporting and Target Rifle—Breech-Loading** (Remingtons').—24-inch barrel, 22, 32 or 38 calibre; weight from 5 to 6 pounds. Supplied at the price, $20. Or it will be presented for 20 subscriptions at $1.50 each. Carriage to be paid by recipient.

**No. 332.—Single-Barrel, Breech-Loader** (Remingtons').—Sixteen gauge, *thirty-two-inch plain barrel*, weight 6¼ pounds. Plainly made, but shoots just as well as the most costly carved and ornamented weapons. Can be loaded and fired 5 to 10 times a minute: cleaning-rod and loading-stick, accompany the gun. We will present this for 19 subscribers at $1.50 each [or supply one for the price, $18.00]. Carriage to be paid by receiver.



**No. 333.—Cartridge Bag.**—Made of heavy water-proof canvas, and will hold 70 rounds. From Thomson & Sons, 301 Broadway, N. Y. Presented for two subscriptions at $1.50 each, [or we will supply one of them for the price, $1.50.] Expressage paid by recipient. ☞ If to go by Mail, send 25 cents to pay postage & packing

**No. 336.—Breech-loading Pocket Rifle.**—(*See Engraving.*)—This remarkable little fire-arm weighs only eleven ounces, yet shoots with great accuracy and power from 30 to 100 yards, or more, and

can be loaded and fired five times a minute. It can be carried inside the vest; is accompanied by an extension breech, and it may be used either as a pistol or like a rifle. Is in a *neat mahogany case*, with 250 rounds of ammunition. Price, $14. Manufactured by Messrs. J. Stevens & Co., Chicopee Falls, Mass. We will present this for 15 subscriptions at $1.50 each. [Or we will supply it for the price, $14]. Receiver to pay expressage.

**No. 337.—Parlor Floor Croquet.**—Very neatly made and finished. Size adapted for either adults or children. The Wickets are so arranged that they will not injure the carpets, consisting of 4 Balls, 4 Mallets, 10 Arches, pointed so as to pierce the carpet, and 2 stakes; all put up in a neat white box. From E. G. Selchow & Co., 41 John St., New York. We will present this for 2 subscribers at $1.50 each, [or we will supply it for $1.50.] Expressage paid by recipient.

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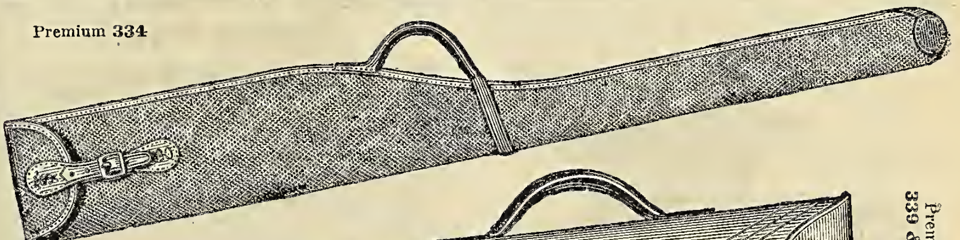

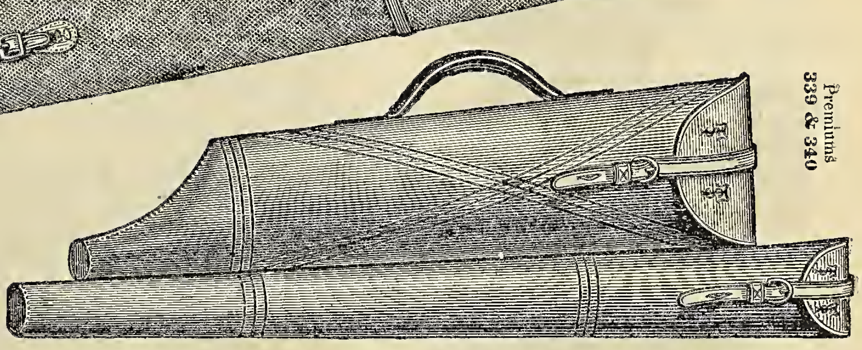

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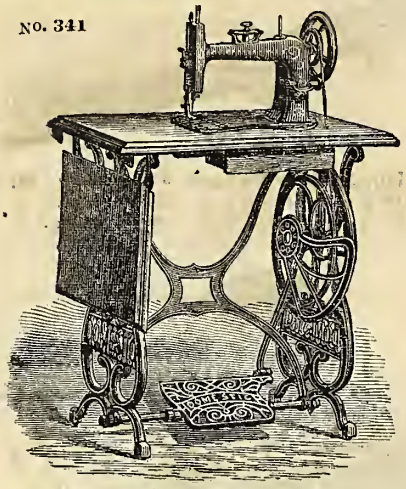

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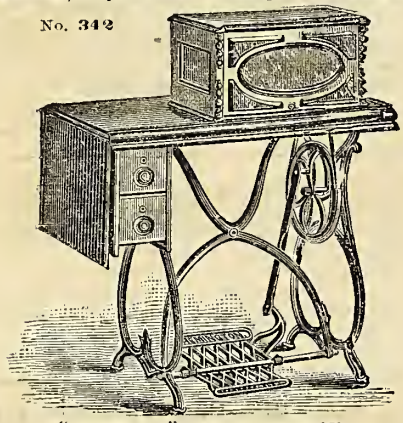

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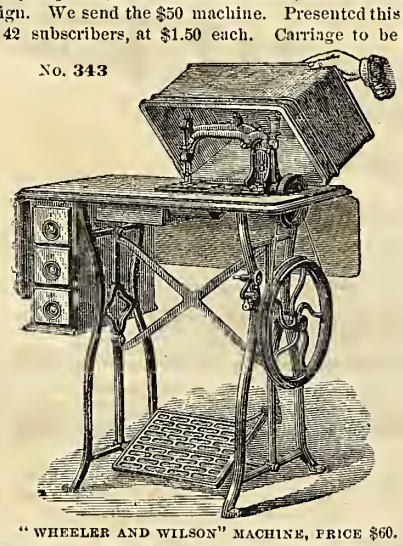

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by receiver.....The **Wheeler & Wilson Manufacturing Company,** Bridgeport, Conn., claim for their machines, beauty and excellence of stitch, strength and firmness of seam, economy of thread, simplicity, and thoroughness of construction, and speed, and ease of management. The machine we offer, price $60, is elegantly finished, with Back and End Leaves, Cover and Drawers, Plated, and fine finish. Presented for 55 subscribers, at $1.50 each. Carriage to be paid by receiver.

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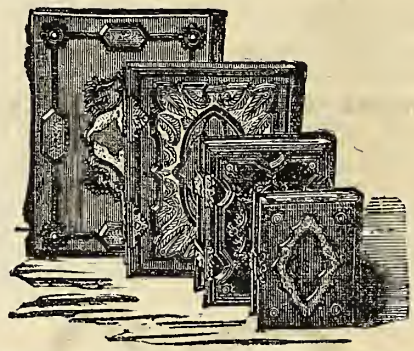

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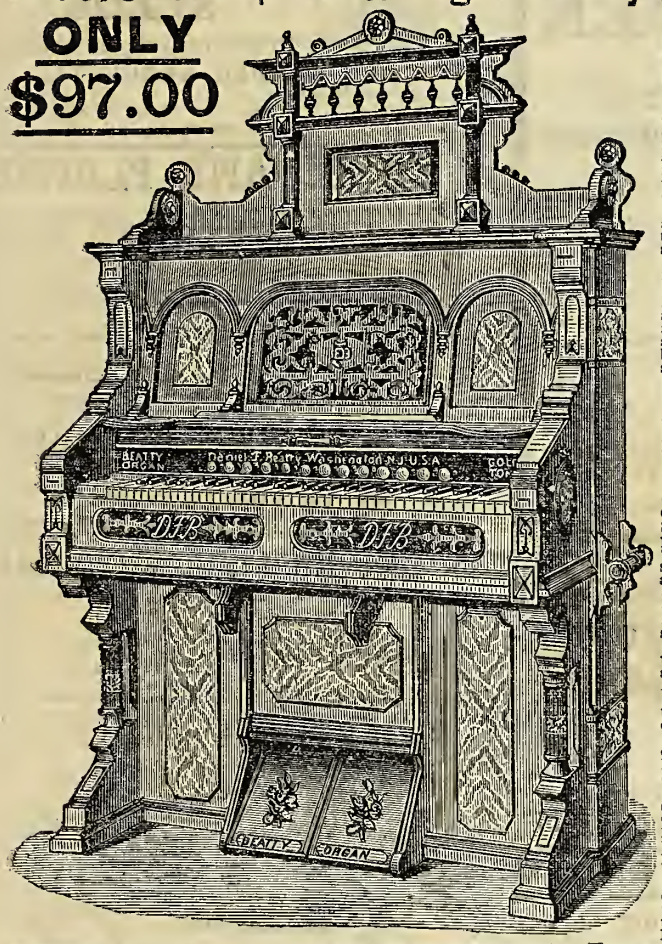


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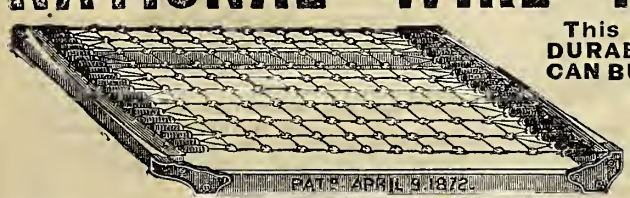


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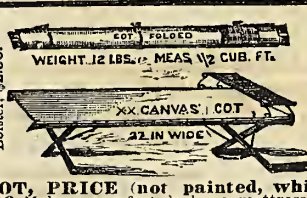


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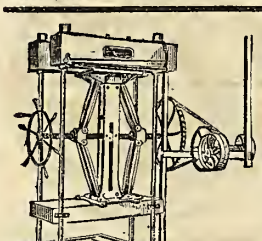

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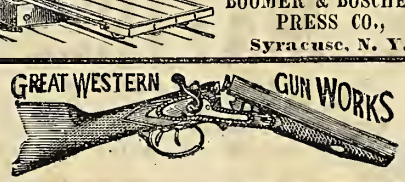


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**FELT CARPETINGS** 20 to 45 cts. per yard. **FELT CEILING** for rooms in place of Plaster. **FELT ROOFING** and **SIDING.** For circular and Sample address C. J. FAY Camden, N. Jersey.

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**Flower and Vegetable SEEDS,**
**Grains, Grasses, Small Fruits,**
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**Special Prices** for large lots. Send for our Seed Catalogue.

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## TREES AND PLANTS

at very low rates, Apple, Peach, Pear. Strawberries, Raspberries, Blackberries, and Grape Vines by the doz., 100, 1,000, or 10,000. Extra large stock of Sharpless, Miner's Prolific, Crescent, and other choice and standard Strawberries. Descriptive Price List free to all.

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A new Illustrated Catalogue of **300 Improved IMPLEMENTS AND MACHINERY** Sent free.

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Plants grown for Transplanting and Fruit for Market. Persons who intend planting, should address for Catalogue free,

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## QUEEN OF THE MARKET

and Cuthbert, the Largest, Handsomest, and Best Red Raspberries, 3 inches around. **100 Acres** Small Fruits. Sharpless, Longfellow, Warren, Huddlestou's Favorite, and Black Giant, the largest and most valuable Strawberries. Snyder, Wallace, and Taylor, the hardiest and most prolific Blackberries. **Kaki,** the most delicious Japan fruit, as large as Apples. **Kieffer's Hybrid** Seedling Pear, **blight-proof,** good quality, bears early and abundantly. Send for Catalogues.

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NEW 10 INCH CROQUET MOWER $10.

*THREE PATTERNS OF*
HAND MOWERS 10 TO 20 INCH CUT.
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OUR SIDE WHEEL MOWER
LIGHTEST AND SIMPLEST AND MOST DURABLE
*ALL OUR MOWERS GUARANTEED.*

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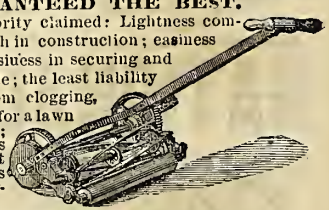
**GUARANTEED THE BEST.**



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Every machine warranted. Address

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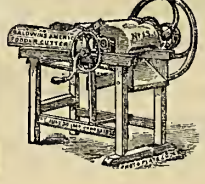

**The Simplest and Best! Only three Feed Gears!** Cuts all kinds of feed, hay, straw, and corn-stalks with ease and rapidity. Power cutters fitted with our **Improved Safety Fly Wheel,** which secures perfect safety to the operator and machine. See large advertisement in Oct. No. of *Agriculturist.* Send for illustrated circular. C. PIERPONT & CO.,
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We have the pleasure of offering the following **NEW PEACHES:—**

**Waterloo.** The largest and finest very early peach.

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**Monroe.** A black Grape, ripening about same time as Hartford Prolific.

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**Frederick Clapp.** Above medium size, very juicy, melting, flavor sprightly, rich and aromatic, quality *best*, pronounced decidedly superior to Beurre Superfiuc.

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**Sharpless Seedling.** This variety has fruited upon our grounds during the past *four years*, and we consider it *one of the Largest and Best Strawberries now in cultivation.*

Priced Catalogues sent as follows: No. **1**, Fruits, with colored plate, 15c., plain, 10c. No. **2**, Ornamental Trees, etc., with plate, 25c., plain, 15c. No. **3**, Greenhouse, free. No. **4**, Wholesale, free. No. **5**, Catalogue of Roses, with beautiful colored plate of choice new Roses, 10c., plain, *free.* No. **7**, Catalogue of Strawberries, with colored plate, free. Address,

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**ONE MILLION**
**WINTER-FLOWERING**
# Plants AND Bulbs

Apply by letter for "Special Low Priced List"

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**A NO. 1 BONE GUANO PHOSPHATE.**

Send stamp for our circular with description and prices of **RELIABLE FERTILIZERS.** Implements and Machines of every kind.

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## IPAVA NURSERIES.

We wish you to examine these prices on

**5,000,000 STRONG PLANTS.**

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☞ We reserve the right to advance our prices after Sept. 1st. At these prices no plants will be dug before Sept. 15th. Where cash is sent with order no charge will be made for boxing. Price-list free.

Address LESLIE & McCUNE, Ipava, Ill.

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**Sows all kinds of Grain and Grass Seed.**

This machine has been sold in every State in this country, and in almost every Grain growing section on the Globe, giving entire satisfaction everywhere to every intelligent operator. Price $6.00. Does the work of 5 men.

**GOODELL COMPANY,**
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SOLE MANUFACTURERS.

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## "VICTOR" One-Horse WHEAT DRILLS,

(3 and 5-hoed) **for sowing Wheat, Rye, Barley,** in fallow ground or in standing corn.

Force feed; simply constructed. The five-hoed is adjustable for different widths, and is just what every small farmer ought to have, saving the price of a two horse drill. Manufactured only by

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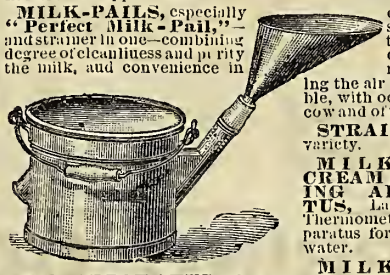
# DAIRY SUPPLY CO.

**261 & 263 Greenwich St., New York.**

We are prepared to furnish **Milk** and **Butter Dairies**, and **the Trade**, with **the best and newest Implements** and apparatus.



**MILK-PAILS**, especially **"Perfect Milk-Pail,"**—and strainer in one—combining a degree of cleanliness and purity in the milk, and convenience in using the air of the stable, with odors of the cow and of the milker.

**STRAINERS** in variety.

**MILK AND CREAM-TESTING APPARATUS**, Lactometers, Thermometers, Apparatus for detecting water.

**MILK-SETTING APPARATUS** of the most approved kinds. **Cooley Creamers, Cooler Pails.**

**MILK CANS.—BOTTLES AND GLASS JARS**, for *individual* delivery; a specialty.

**CHURNS**—especially our own **Pendulum** or **Monitor Churn**—oscillating upon cords from the ceiling. The easiest working and most perfect churn, in all respects, made, especially for granular butter and the brining process.

**BUTTER MOULDS**, Prints, Presses, etc.

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# COOLEY CREAMER

Supersedes large and small pans for setting milk.

It requires no milk room.

It requires capacity for one milking only.

Impure air, dust, or flies, cannot reach milk set in it.

It makes more butter, because it raises all of the cream, and the quantity is never lessened by unfavorable weather.

It makes better butter. It requires less labor. It is cheaper. Butter made by this process took the HIGHEST AWARD at the INTERNATIONAL DAIRY FAIR, held in New York, Dec., 1878, and at the ROYAL AGRICULTURAL EXHIBITION, held in London, June, 1879—and brings the highest price in all the great markets.

☞ Send stamp for the DAIRYMAN to

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A perfect preventive of cows and calves sucking each other. Endorsed by the Secretary of the American Guernsey Cattle Club, Edward Norton, Farmington, Ct., and by P. H. Fowler, as simple, effectual, humane, Jersey and Guernsey Cattle Repository, Watford, Herts, England.

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# Big Giant Corn Mill,

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The only Mill that will grind Corn with Shuck on without extra expense. The only Mill grinding Corn and Cob successfully, that will grind Shelled Corn fine enough for family use.

Grinds twice as fast as any other Mill of same size and price.

MANUFACTURED BY

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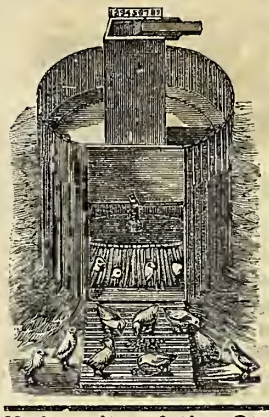

Heated by horse manure. 100 eggs capacity, and mother $25.

**45 MEDALS AND DIPLOMAS**

have been awarded. With this new process, 12 hens will give about

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of Jersey and Ayrshire Cattle, Southdown and Cotswold Sheep, six breeds of Swine, Fancy Poultry in great variety, Sporting and Shepherd Dogs, and Farm and Garden Seeds. **It costs nothing,** and may be of profit or pleasure to you. **You can rely** on **BURPEE'S SEEDS** to produce good crops, fine vegetables, and beautiful flowers. While **BURPEE'S BLOODED STOCK** is always first-class, thousands of farmers, North, East, South, and West, can testify to these facts. Send your address plainly written to W. ATLEE BURPEE & CO., Seed Warehouse, P. O. Box 1890, 221 Church St., Phila.

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## REMIUM HEADQUARTERS STOCK.

Also, **Improved Yorkshire and Berkshire Pigs,** all ages.—Thoroughbred **Jersey** and **Ayrshire Calves,** "*deep butter and milk strains,*" a specialty.—**Scotch Shepherd** and other **Dogs,** bred and for sale by

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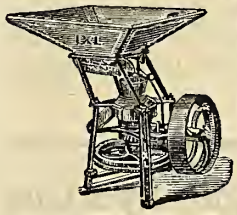


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**4,000 BUSHELS OF GOOD FEED,**

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Improvements in Threshers render them the most complete and effective machines in the market. Engine and Boiler of novel design. Light, Economical, and Powerful. Boiler Shell upright; flues horizontal; safe as regards sparks.

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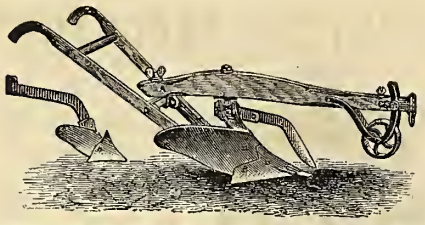
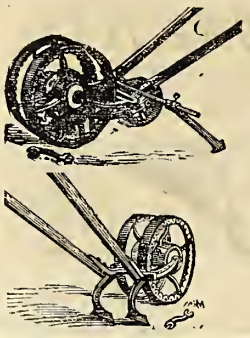
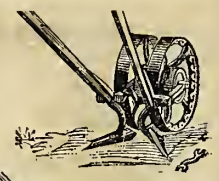
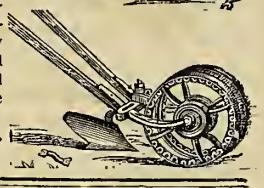


**ADAMANT PLOWS** are the only plows made that contain all the modern improvements, viz., Central Draft, Hard Metal, Self-Sharpening Slip Shares. We make them all sizes, both wood and iron beam.
They are more profitable for a farmer to use than either steel or soft cast-iron. Cheaper to repair. Agents wanted.
**NEW YORK PLOW CO.,** 55 Beekman St., N. Y.



# WE HAVE MADE





Our Seed Drills and Wheel Hoes, and our Combined Drill, Wheel Hoe, Garden Plow and Cultivator, so perfect and complete as to call forth the continued praise and admiration of all practical men, but we intend that future purchasers shall have still better goods. Inquire for them at any hardware or seed store, or we will be glad to correspond and furnish descriptive circulars and testimonials, and all desired information. These articles quickly save the whole first cost. **S. L. ALLEN & CO.,**
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Mark this Advertisement for reference in the spring.

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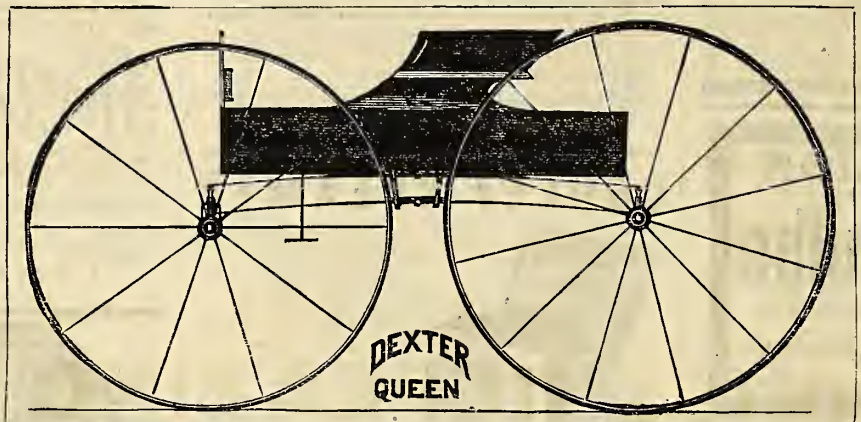
## ACKNOWLEDGED THE EASIEST RIDING CARRIAGE SPRING IN THE WORLD.

### Admitted by All

That the Dexter Queen has more good points than any other vehicle in use. The diagonal lower springs with the parallel top springs form a combination of the greatest merit, and place the Dexter Queen before the world as the best carriage for all uses ever made.

### Nothing but the Best.

In the manufacture of the Dexter Queen we use for shackles, stays, &c., only the very best drop forgings, and in our springs continue, as we have done in the past, our celebrated brand of Dexter
**CRUCIBLE CAST STEEL.**

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The Dexter Queen is in use by Physicians, Lawyers, Judges, Merchants, Farmers, Mail Carriers, and Business Men, who pronounce it the easiest and safest riding vehicle ever made, and only has to be tried to be appreciated. Admirably adapted for rough country roads.

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**SAFETY, COMFORT, ECONOMY!**
**THE**
# RUBBER CUSHIONED AXLE

reduces breaking, jarring, jolting, vibration, and noise to a minimum, thereby assuring greater safety and comfort in riding, with a large savin in wear and tear. It also saves horse power by lessening traction, and therefore is of special value to **SULKIES** and **ROAD WAGONS.** It will improve the riding and wearing qualities of any vehicle, whether **LIGHT** or **HEAVY,** however good its construction or easy its springs.
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**THE RUBBER CUSHIONED AXLE CO.,**
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**THE OPPENHEIM**
# DOUBLE BUGGY.

Instantly changed from a neat Buggy into a roomy 4 passenger Carriage. Entirely new principle. No rattling or shaking. No half-and-half look about it. Send for illustrated price list. New Haven, Conn.
**THE OPPENHEIM M'F'G CO.**

**STEVENS' PATENT**
# Breech-Loading Sporting Rifles.

**Double and Single Barrel Shot Guns, Pocket Rifles, Pocket Pistols, and the noted Hunter's Pet Rifles.** Special attention is called to our Double Breech-Loading Guns. They are simple in construction and manufactured with great care from the very best material. They are pronounced by experts **"the best gun in the market for the money."**
Send for Catalogue. **J. STEVENS & CO.,**
**Chicopee Falls, Mass.**

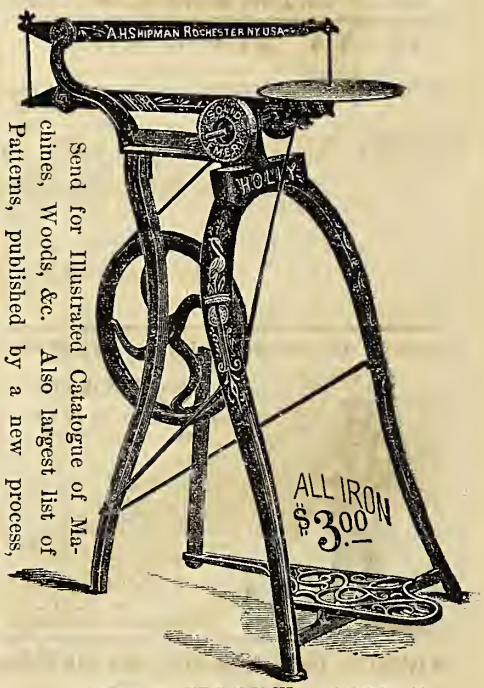
**BETTER THAN A**
# FORTUNE

are the results of one of these machines in every family.

**Work done with this Machine.**

**IMPROVED DEMAS**
has not a comparison.

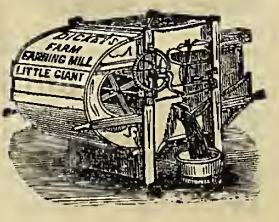
Send for Illustrated Catalogue of Machines, Woods, &c. Also largest list of Patterns, published by a new process, whereby they are transferred to the wood without the use of impression paper. The only thing of the kind ever published.




**"1880" HOLLY, "1880"**
with 7 most useful improvements.
**A. H. SHIPMAN, Manufacturer, Rochester, New York.**

# The Best is Always the Cheapest.

## None Better than Dickey's Peerless Corn Sheller and Little Giant Fanning Mill.




Buy the Peerless Sheller. It is the easiest operated and most perfect working. Adjustable for all sizes of corn. Shells 60 bushels ears per hour. Separates corn from cobs and chaff, and operated by one person.
The **Little Giant Fanning Mill** has no equal. It does more work for the money than any mill made. Clean grain always commands a ready market. Send for circular of our unequalled farm tools.
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in large and remarkable variety, including the

**JAPANESE MAPLES.**

Rhododendrons, Hardy and Greenhouse Azaleas, Camellias, Roses, Purple Beech, in large quantities.

Also a complete assortment of Fruit and Ornamental Trees, Shrubs, and Vines.

Price Lists **free.** Descriptive Catalogues 10 cents.

PARSONS & SONS CO. (Limited),

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# AMERICAN SUBMERGED PUMP

IS A DOUBLE-ACTING, NON-FREEZING

**FORCE-PUMP.**

Will draw water from 1 to 100 feet, with one-man power, and also force water to any required distance.

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**Wakefield, Perfection, and Peerless**

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## The Light-Running

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## The Domestic Machine.

The qualities that recommend a machine for practical Family Sewing are fully embodied in the Light-Running "Domestic."

It is the simplest machine, having the fewest parts, all strong, and with hardened conical bearings. Good material and the perfection of workmanship insure an extraordinary durability. Being free from complication, it is easily cared for; never gets out of order; is always ready for use. The most inexperienced can readily manage it.

It has all the modern appliances and conveniences that go to make up the sum of excellencies.

It makes a beautiful and durable double-thread lock-stitch, suited to every description of work. It uses all kinds of thread, and sews with facility from the finest to the heaviest material.

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meet the requirements of Ladies who wish for BEAUTY, STYLE, or ECONOMY in dress. They comprise a large and varied assortment of Patterns for Ladies', Misses', and Children's Garments of foreign and domestic designs by the most accomplished modistes. They are the most perfect-fitting, most stylish, and yet the most simple patterns ever presented to the public, and take the lead wherever introduced.

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We will mail to any address, a large Catalogue of the prevailing styles, with prices and directions for measurement. The Patterns will be sent by mail, postage paid, on receipt of price.

## Agents Wanted in all Unoccupied Territory.

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DOMESTIC SEWING MACHINE CO., New York.

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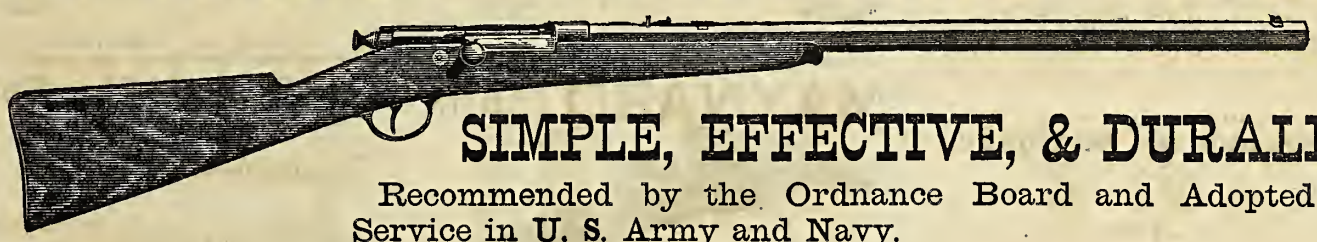

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Recommended by the Ordnance Board and Adopted for Service in U. S. Army and Navy.

**6-shot and carries the Regular 45 Cal. 70 Grain U. S. Government Cartridge.**

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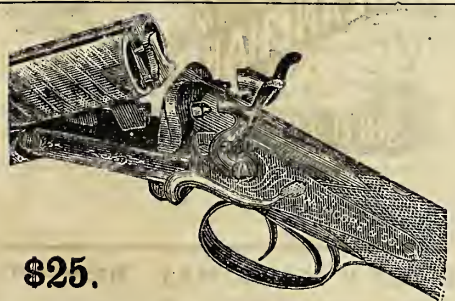

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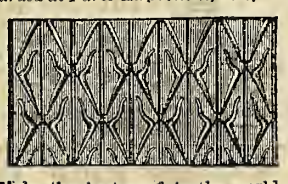

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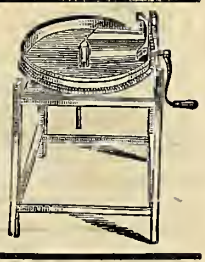

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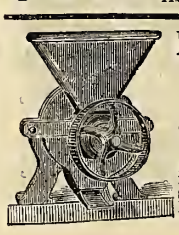

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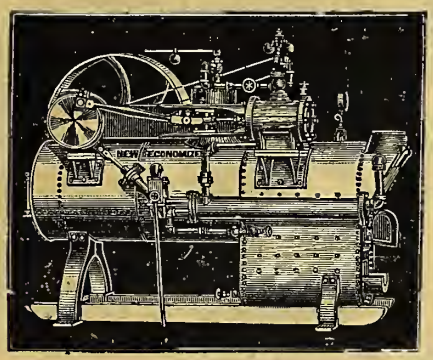

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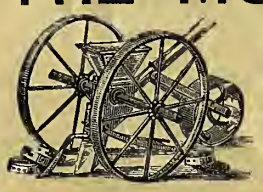

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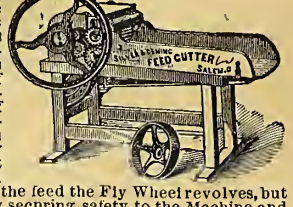


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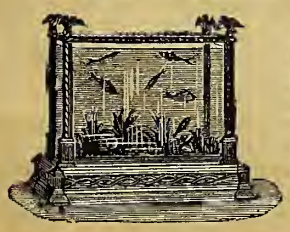

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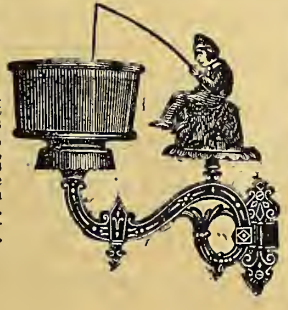

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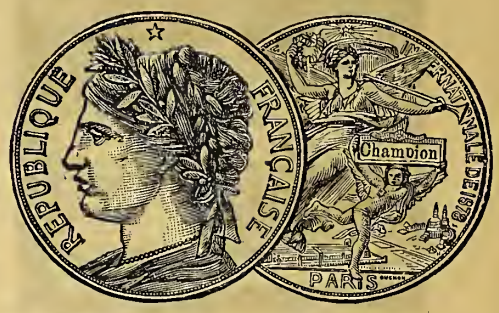


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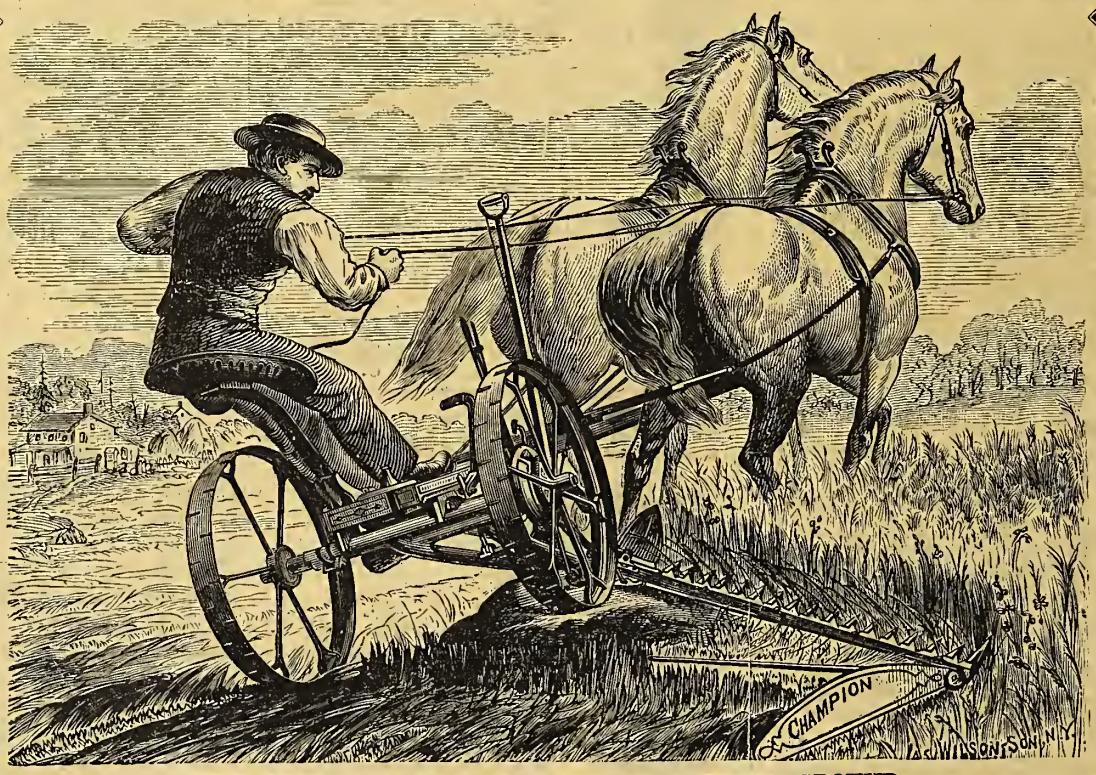


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|---|---|---|---|---|
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| Equivalent in United States weight to | **163 lbs.** | 248 lbs. | 286 lbs. | 330 lbs. |
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NOVEMBER, 1879.

# AMERICAN AGRICULTURIST.

FOR THE FARM, GARDEN & HOUSEHOLD.

VOL. XXXVIII. NUMBER 11.

PUBLISHED BY THE
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245 BROADWAY,
NEW-YORK.

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THANKSGIVING IS COMING.—DRAWN BY EDWIN FORBES.—*Engraved for the American Agriculturist.*

Many of our readers—and they need not be very old—can recollect when Thanksgiving day was an exclusively New England Holiday, and in which the others of the older States did not participate. As New Englanders migrated westward, and helped to found new States, they carried with them their usage of annually observing a day of thanksgiving, it is thus that the custom has spread to other States, until now, having been confirmed by the action of recent Presidents, Thanksgiving has become no longer a partial, but a National Holiday. It is well that this, *originally a farmer's holiday*, has a general observance. It is most fitting that the farmers of this broad land should, on one day in the year, gather in their scattered children, and in one of the Holiest of Temples—*Home*—give thanks for that upon which the prosperity of the nation rests—the abundant harvest. It is pleasant to think upon Thanksgiving day in its higher aspects, but not the less so in its associations and its minor influences. Being emphatically a home holiday, it more than all others affects the homes of the land, not less the homes in towns and cities than homes upon farms, and long before the day is at hand the thought that "Thanksgiving is coming" controls the movements in households everywhere. The home that is not upon the farm is none the less to observe the day; it, too, is to have its "feast of fat things," and the city housekeeper looks to her sister in the country for the fatted turkey "wherewith to make merry." Our artist, in the above engraving, shows one of the signs that all over the country foretell that "Thanksgiving is coming," and that the influence of the day is far-reaching. A large share of the demand for the turkey, the bird that has become so essential to the thanksgiving feast, is supplied by those farmers whose flocks number hundreds; but aside from these, the turkey plays an important part on many small farms, and the bird, besides "furnishing forth" the material for many a home feast, is in itself a cause for grateful thanks. Many a mother, to help the family purse; many a daughter, in pride at being independent of her father's hard earnings, to meet her personal

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wants, looks to her flock of turkeys; and now, as Thanksgiving draws nigh, she counts and feeds her flock with pleasant anticipation of the day in which the hopes of many days will be consummated. Blessed be the observance which touches so nearly so many human hearts. Blessed be the day which brings joy to so many homes—which, to the wanderer, wherever he may be, turns his thoughts towards home. And when has the American farmer had greater occasion on Thanksgiving Day than now to say: "Oh! give thanks unto the Lord, for He is good, and His Mercy Endureth Forever!"

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## Calendar for November, 1879.

| Day of Month. | Day of Week. | *Boston, N. England, N. York State, Michigan, Wisconsin, Iowa, and Oregon.* Sun rises. | Sun sets. | Mo'n rises. | *N. Y. City, Ct., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois.* Sun rises. | Sun sets. | Mo'n rises. | *Washington, Maryland, Virginia, Kentucky, Missouri, and California.* Sun rises. | Sun sets. | Mo'n rises. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | H. M | H. M | H. M. | H. M | H. M | H. M. | H. M | H. M | H. M. |
| 1 | S | 6 34 | 4 54 | 6 10 | 6 31 | 4 57 | 6 16 | 6 28 | 5 0 | 6 22 |
| 2 | S | 6 35 | 4 52 | 6 57 | 6 32 | 4 56 | 7 4 | 6 29 | 4 59 | 7 11 |
| 3 | M | 6 36 | 4 51 | 7 47 | 6 33 | 4 54 | 7 59 | 6 30 | 4 58 | 8 6 |
| 4 | T | 6 37 | 4 50 | 8 53 | 6 34 | 4 53 | 8 58 | 6 21 | 4 57 | 9 4 |
| 5 | W | 6 39 | 4 49 | 9 56 | 6 35 | 4 52 | 10 1 | 6 32 | 4 55 | 10 6 |
| 6 | T | 6 40 | 4 48 | 11 2 | 6 37 | 4 51 | 11 6 | 6 33 | 4 53 | 11 10 |
| 7 | F | 6 41 | 4 46 | morn | 6 38 | 4 50 | morn | 6 34 | 4 52 | morn |
| 8 | S | 6 43 | 4 45 | 0 10 | 6 39 | 4 49 | 0 12 | 6 35 | 4 52 | 0 16 |
| 9 | S | 6 44 | 4 44 | 1 19 | 6 40 | 4 48 | 1 20 | 6 36 | 4 51 | 1 22 |
| 10 | M | 6 45 | 4 43 | 2 31 | 6 41 | 4 47 | 2 31 | 6 37 | 4 50 | 2 32 |
| 11 | T | 6 46 | 4 42 | 3 46 | 6 43 | 4 46 | 3 44 | 6 38 | 4 50 | 3 43 |
| 12 | W | 6 48 | 4 41 | 5 4 | 6 44 | 4 45 | 5 1 | 6 40 | 4 49 | 4 54 |
| 13 | T | 6 50 | 4 40 | sets | 6 45 | 4 44 | sets | 6 41 | 4 48 | sets |
| 14 | F | 6 51 | 4 39 | 4 55 | 6 46 | 4 43 | 5 1 | 6 42 | 4 47 | 5 8 |
| 15 | S | 6 53 | 4 38 | 5 56 | 6 47 | 4 42 | 6 3 | 6 43 | 4 47 | 6 10 |
| 16 | S | 6 54 | 4 37 | 7 4 | 6 48 | 4 41 | 7 12 | 6 44 | 4 46 | 7 19 |
| 17 | M | 6 55 | 4 37 | 8 19 | 6 50 | 4 41 | 8 25 | 6 45 | 4 45 | 8 31 |
| 18 | T | 6 56 | 4 35 | 9 33 | 6 51 | 4 40 | 9 37 | 6 47 | 4 44 | 9 41 |
| 19 | W | 6 57 | 4 34 | 10 44 | 6 52 | 4 39 | 10 46 | 6 48 | 4 44 | 10 50 |
| 20 | T | 6 58 | 4 34 | 11 51 | 6 53 | 4 39 | 11 52 | 6 49 | 4 43 | 11 55 |
| 21 | F | 7 0 | 4 33 | morn | 6 54 | 4 38 | morn | 6 50 | 4 43 | morn |
| 22 | S | 7 1 | 4 32 | 0 56 | 6 55 | 4 37 | 0 56 | 6 51 | 4 42 | 0 57 |
| 23 | S | 7 2 | 4 32 | 1 58 | 6 56 | 4 37 | 1 57 | 6 52 | 4 41 | 1 57 |
| 24 | M | 7 3 | 4 31 | 3 0 | 6 58 | 4 36 | 2 58 | 6 53 | 4 41 | 2 56 |
| 25 | T | 7 5 | 4 30 | 4 1 | 6 59 | 4 36 | 3 59 | 6 54 | 4 41 | 3 55 |
| 26 | W | 7 6 | 4 30 | 5 3 | 7 0 | 4 35 | 4 59 | 6 55 | 4 40 | 4 55 |
| 27 | T | 7 7 | 4 30 | 6 4 | 7 1 | 4 35 | 5 59 | 6 56 | 4 40 | 5 50 |
| 28 | F | 7 8 | 4 29 | rises | 7 2 | 4 34 | rises | 6 57 | 4 39 | rises |
| 29 | S | 7 9 | 4 29 | 4 54 | 7 3 | 4 34 | 5 1 | 6 58 | 4 39 | 5 8 |
| 30 | S | 7 10 | 4 29 | 5 47 | 7 4 | 4 34 | 5 54 | 6 59 | 4 39 | 6 1 |

PHASES OF THE MOON.

| MOON. | BOSTON. | | N. YORK. | | WASH'N. | | CHA'STON | | CHICAGO. | |
|---|---|---|---|---|---|---|---|---|---|---|
| | D. | H. M. | | H. M. | | H. M. | | H. M. | | H. M. |
| 3d Quart. | 7 | 1 11 | mo. | 0 59 | mo. | 0 47 | mo | 0 35 | mo. | 0 5 mo. |
| New M'n | 13 | 7 55 | ev. | 7 43 | ev. | 7 31 | ev. | 7 19 | ev. | 6 49 ev. |
| 1st Quart | 20 | 2 5 | ev. | 1 53 | ev. | 1 41 | ev. | 1 29 | ev. | 0 59 ev. |
| Full M'n | 28 | 4 13 | ev. | 4 1 | ev. | 3 49 | ev. | 3 27 | ev. | 2 57 ev. |


# AMERICAN AGRICULTURIST.

NEW YORK, NOVEMBER, 1879.


## Hints for the Work of the Month.

[*The Hints and Suggestions in these columns are never copied from previous years, but are freshly prepared for every month, from the latest experience and observations, by practical men in each department.*]

*Plowing the Corn Stubble*, should be made the first business of this month. In fact, the plowing under or otherwise disposing of all rubbish from gathered crops, should be done as soon as possible.

*Green Manuring*, is one of the chcapest and easiest methods of fertilizing land. A stubble plowed early this month, may be sown with rye, at a cost of less than $2 per acre, and the rye may be plowed under in the spring, April or May, and the ground sown with another crop. Otherwise the rye may be cut for fodder, and the ground used for oats. But an occasional green crop plowed in, will be found very useful in keeping up land, and rye is the only one that can be used at this season.

*Roots after Corn.*—A badly plowed corn stubble, is the worst possible ground for roots, and if these are to be grown next season, and corn stubble is to be plowed first, it must be plowed deeply, and all the corn-stubs well covered. Root culture requires good farming, and rough uneven plowing, with loose corn-stubs on the surface, is not good farming. A well plowed corn stubble may be worked with the disk harrow in the spring, and well fitted for roots, which are preferable to oats to follow corn.

*Corn Fodder.*—Corn stalks that are out in the field should be made safe, either by stacking or putting under cover, as soon as possible. Hay is scarce and will be dear, and fodder of all kinds is worth caring for; to expose it to the weather, as is too ofteu done, is injurious and wasteful.

*Root Pits.*—Roots and potatoes will heat and "sweat," and if not well ventilated, or if the pits are not uncovered, they will decay. This should be carefully looked to, and the pits must not be completely closed, until all danger from heating is over. Roots yet undug, should be secured at once.

*Surface Drains* may be made to serve a very useful purpose. If the waste flows off from the ground in this way, sub-soil drainage may be unnecessary. But surface drainage is a waste, because some fertilizing matter is carried away, which would be left in the soil if the water soaked through it into under drains, and surface draining is therefore only a temporary expedient at the best. Surface drains may be used with advantage where land is not underdrained, and this is the seasou for the work.

*Deep Drains.*—Making drains is especially a work for this season. If a field, or part of one, or a low piece of land is properly drained each year, by and by the whole farm will be put into good condition. Patience and time are especially needed in farm work. One cannot do everything in one year, nor in ten, in many cases, so that a farmer should not be discouraged, if he cannot do all that he desires, in oue or two seasons. If what is done is *completed*, as far as it goes, one should be satisfied.

*Good Work.*—One of the most important hints that we can offer to our fellow farmers, is to do ouly good work, for this only pays; and never to begin a job unless it can be well finished; for a job of work left half undone, is frequently worse than if not commenced. It is better to put off the beginning of a job, than to fail in carrying it through, by beginning before one is ready for the work.

*The Chinch Bug* has been unusually destructive the past season. Its winter harbors are in the stubbles and any standing weeds that remain in the fields. Doubtless the ravages of this pest are encouraged by the safe shelters it finds in this way. Wheat farmers may take a hint from this, that cleaner culture may be found an effective method of destroying this, and other pests, by depriving them of winter quarters.

*Fences and Ditches.*—Before the ground freezes, put feuces and ditches in good order. Fence posts that are loose may be tamped solidly, and a stone rammed on each side will steady a post better than packing with earth. Mouuding up around the posts will turn the water from them and save them from heaving. The weeds that have grown in the ditches, and the accumulations of leaves and rubbish, should uot be left in them; remove all such and make a clear chanuel for the water to flow away.

*Cows.*—Dairymeu have reason to hope for better things. An advance of 100 per cent on cheese, and 25 per cent ou butter, is cheering, although, unfortunately, the dealers get all the benefit of it at present. The dairymen, however, will have the advantage in the future, and this will be an incentive to improve the condition of the cows. Winter dairying is a profitable business, and the best dairymen are gradually working into it, but it will be only the first-class dairymen who will succeed in it.

*Winter Feeding for Cows.*—The yield of milk and butter in the summer depends greatly upou the winter feeding. All the feed giveu to cows is not consumed without return. The manure gives a good dividend upou the outlay, and the animals are storing up energy and strength to be made available afterwards. The wiuter is the season for liberal and judicious feeding and not for "short commons," which is but another term for half starvation.

*Regular Rations* are absolutely necessary. Steady feed means steady thrift aud profit. Scarcely any two animals have the same appetites. In feeding, observe closely and know the habits of each animal; the winter is the time for this study.

*Mixed Feed.*—Sameness palls upon the appetite; a variety of food encourages it. A good farmer loves to see his animals eat, and the more they eat, and healthfully digest, the greater are the owner's profits. Cut or pulped roots will be found the best basis for winter feeding, and with these, corn-fodder and oat straw may be given liberally, saving the hay until the early spring. Prof. Atwater's articles on feeding, published in the *American Agriculturist* in 1877, with numerous tables of rations, will make instructive reading for the present long evenings. It must be remembered, however, that, in giving its chemical character, the digestibility of the fodder is not taken into account. This is a practical matter which must be considered in connection with the theoretical estimates.

*Horses.*—The teams should not rest while a day's work in the field remains to be done. Good feeding is needed while work continues. Idle horses may run in a fenced yard or field, and hay or corn-fodder will be sufficient for them while not at work.

*Colts.*—Young colts and yearlings require good nutritious food. Oats are the best food for a growing colt; if corn is used, wheat-bran is a proper accompaniment. Abundance of phosphates is needed to form a solid and strong bony framework, and bran is rich in these. Keep the skin clean with the curry-comb and brush, especially the latter.

*Sheep and Lambs.*—The ewes will now be in lamb, or should be, excepting where late lambs are desired. Where wool and mutton are the chief objects, May lambs will be preferable to earlier ones. There is no better place or time for lambs to be dropped than in a pasture on a fine sunny May day. Where lambs for market are wanted, the ewes will now be in breeding, and will need some extra care. An abundance of good, nutritious food, and water, are the principal requisites. Sheep may be the last animals to be brought into winter quarters.

*Sheds and Yards* should be prepared without delay. The use of iron for building sheds, described elsewhere, is worthy of consideration. This material has the advantage of being put together cheaply and rapidly, and a portion of a yard covered with it, might in many cases be a good investment. Litter for sheds should be kept dry, and plenty of it gathered. Leaves from the woods are not surpassed for the sheep-yards and pig-pens.

*Pigs.*—Pork can hardly fail to join in the general upward movement. While pigs of pure breed can be obtained cheaply, the opportunity for improving the stock should not be neglected. It is probable that a better time than the present will not soon occur again. Pigs, as manure-makers, are not so much considered as their importance deserves.

*Poultry.*—A well arranged poultry house, plain, without "gimcrack" and useless fixtures, and made so as to be kept clean easily, will pay as well as any other farm expenditure, if not better. With eggs at 2 cents each, 12 good hens will now return more than $3 in a month, and next month more than that. The profit of keeping winter layers is obvious. In all farm work our aim should be to produce that which sells best, and at a time when it sells for the highest price. At odd times, a stock of coops may be made for use in the spring.

*Sundry Matters.*—A general clearing up is now in order. Fields, fences, yards, buildings, and cellars, should be cleared of rubbish, and the rubbish burned. Gather up every tool and put it into its place; fix up wagons and carts, clean and paint them; arrange the house for winter and rough weather; now that lights have to be carried about the barns and stables, everything should be fully insured, and a good responsible company selected to insure in; fire-wood should be prepared and put under shelter, and that general family peace-maker, dry fuel, generously supplied and conveniently placed for use; where coal is used, a bin under cover, with an opening at the bottom for taking out the fuel easily, will save trouble and loss. Finally, prepare a suitable place for disposing of all household waste where it can be made available as a fertilizer and all risk of infection from it be avoided.

## Orchard and Garden Work.

Whatever the season may have been, this month brings work to a close over a wide extent of country. The orchardist or gardener finds himself at the closing of one year, and already at the beginning of another, and while he is occupied with the sale, or the proper storing, of his crops, he must, in order to be successful, also plan, and in some things prepare, for the crops of the coming year.

### Orchard and Nursery.

*Apples.*—With the present short crop, fruit that in years of abundance would not be thought marketable will sell, and should be sorted with this in view, and put up in the best possible shape. The rejected fruit can go into cider, which is better when made at this season, because the process of fermentation goes on more slowly.

*Fences and Gates* of the orchard and nursery should be in good order, especially at this season, when a stray animal may do serious damage.

*Rabbits* can do much harm if left to themselves. If the trees are few, they may be protected by bands of lath or tarred paper, tied on with fine wire. Rabbits have a great distaste for meat, and may be kept away from the trees by smearing the trunks of the trees with blood, or rubbing them with liver or other refuse meat. A small "bounty" on rabbits will make boys active with their traps. The rabbit is at its best in November, and a fat young one is most excellent.

*A Mound of Earth* at the base of young trees will serve the double purpose of a support to the tree against the winds and storms, and also prevent mice from gnawing the trunks and killing the trees. The mounds should be 18 or 20 inches high, and of earth free from weeds, so that it may pack firmly.

*Draining*, if necessary, should be done before hard freezing weather. Surface water should not be allowed to collect; a few furrows in the right place will be useful in carrying off the water.

*Cions* may be cut as soon as the leaves fall, when they should be put into sawdust, or, in its absence, sand, and kept in a cool cellar. Only healthy, thrifty trees of well-known varieties should be selected from. It is better to buy than to use poor stock.

*Stocks for Root Grafting.*—The grafting is done during the winter, and therefore the stocks should be in a handy place. The stocks are taken up before the ground freezes, assorted, tied in bundles, and put in boxes, with their roots well covered with soil, and placed in the cellar, ready for grafting.

*The Keeping of Fruit* requires a uniform, low temperature, just above the freezing point. Fruit, in ripening, gives off carbonic acid gas, which is deleterious, hence fruit should not be stored in the house cellar, if it can be avoided. Where there is no other place for the fruit, then the ventilation of the cellar must be carefully looked to, and if an opening can be made from the cellar into the chimney, let it be done. Open the windows of the cellar when the outside temperature will allow.

*Detached Cellars* should be provided where there is much fruit. In such, ventilation is not required, as the gas, by excluding the air, retards the ripening, and, in fact, tends to preserve the fruit.

*Labels.*—Those upon the trees should be looked to. The old style, made of pine, marked with a lead-pencil while a coat of white-lead is still fresh upon them, is about the best. Some prefer zinc strips with the name written with pencil. Perhaps the best, most durable tree label, was described and figured in the September number.

*Seeds of Trees* for spring planting are best preserved by mixing them with sand, and placing the boxes in a cool and dry place, where there are no mice.

*Manuring.*—If the results of annual cropping without any return to the soil could be seen in an orchard as quickly as in a corn or potato field, there would be fewer melancholy illustrations of the fact in unproductive orchards. What manure shall be given will depend upon circumstances, and the subject is too large to discuss here. Stable manure, bone, ashes, green crops—turned under, not taken off, as is too frequently done—and lime, are all of great value, and should be freely used.

### The Fruit Garden.

To those really fond of gardening, the propagation of plants is one of its greatest pleasures. Aside from the economy of raising their own plants, and the certainty of having these true to name, there is a vastly greater satisfaction in cultivating plants they have started from the beginning—almost created—than with plants purchased already grown. The case with which many things may be multiplied will surprise those who have never attempted it. In propagating, it is of great importance to do it at the right time, and in some cases the operation must be begun months before it is finished. For the fruit garden, the propagation of the Currant, Gooseberry, Blackberry, Raspberry, and the Grape, is best begun in the fall. The very simplest is

*The Propagation of the Currant and Gooseberry.*—The material used is the pieces removed from the bushes at the time of pruning. We have advised pruning so soon as the leaves fall, which is usually a month or more earlier, though many put it off until now, or much later. In pruning the Currant, the aim should be to have an open bush; remove altogether, from the base, those stems that make it too crowded, whether young or old, and the present year's growth of stem should be shortened by cutting off one-third or one-half. From the prunings,

*Currant Cuttings* are made, using only the growth of this year (told by its much lighter color), and cutting it into six-inch lengths. In localities where the ground is not likely to freeze hard for some weeks, the cuttings may be planted at once, otherwise they may be set quite close together in boxes of soil; the soil should be deep enough to allow them to be pushed in for two-thirds their length. Place the boxes in the cellar, see that they do not get very dry during the winter, and set out the first thing in spring. To plant now, open a trench with the spade, having one side of it perpendicular, and deep enough to hold the cuttings, leaving an inch above the surface. Place the cuttings 4 inches apart, and carefully fill in the earth. Success largely depends upon having the soil well against the lower ends of the cuttings, and it should be firmly pressed down here, using the end of a board to gently, but firmly, pound it down. Cover the bed with straw or hay, and leave it until spring.

*Blackberry and Raspberry.*—Both are supposed to have had the old stems cut away as soon as the crop was off. If this was not done then, do it now, and tie up the canes for the winter. Those who cultivate the tender raspberries must cover them this month. The canes are bent down in the direction of the row by one man, while another throws enough earth upon them to hold them in place; in a garden, the work may be done with the spade or shovel, covering the entire length of stem with a few inches of earth. In large plantations, the covering is done with a plow, and very rapidly.

*Propagating the Blackberry and Raspberry.*—In small gardens, the demand for plants is usually supplied by suckers, which come up from the old stools, and are allowed to grow for the purpose. Where a larger quantity are needed, they may be readily raised from root-cuttings. Roots are taken from old plants, by cutting down at a short distance from them with a sharp spade—they can lose a portion of their roots without injury—and taking up the severed roots. Cut up these into pieces two and three inches long, the smaller the roots, the longer the pieces, and place them in boxes of earth. Put in a layer of an inch of earth, cover this with cuttings, then another layer of earth, and so on. Place the box in the cellar, looking to it occasionally to see that it does not get too dry. If watering is necessary, do not make mud of the soil, the object being to keep it at the natural moisture. On the large scale, the box of roots and earth is buried in a place where no water will stand, and provision made for drainage. In either case, when the box is opened in the spring, the cuttings will be found to have callused, and with buds, and more or less roots will have formed. The cuttings are then to be set out in the open ground.

*Grape-Vines.*—Pruning should be done as soon as the leaves fall. Vines set this spring should bear one or two shoots next year, according to their vigor. Cut such vines back to three buds or so, leaving one or two extra ones to provide against accident. Old vines should be pruned according to the condition of each vine. Enough buds should be left to produce a sufficient number of shoots to bear the leaves and fruit, and no more, as it is to be remembered that those buds left after pruning represent the new growth for the next year.

*Propagation of the Grape.*—The cuttings are made from the branches pruned off, and should have two buds at least; tie them in bundles, label, and cover with earth in the cellar. The Concords and many others grow readily from such cuttings planted in the open ground in spring; others of harder wood, like Delaware, etc., do not grow readily, and are raised from cuttings of a single eye, in propagating houses; while others still, like Norton's Virginia, are with great difficulty propagated from cuttings at all, and must be layered. The Delaware, and others like it, may be propagated in the open air

by tying the cuttings in bundles, aud puddling them in thin mud for half their lower length. These are to be set iu a cold-frame, *upside down*, fiue earth sprinkled in among the bundles, and earth over the cuttings to the depth of four inches. Wheu it begins to freeze, the frame is filled up with straw or leaves, and covered with boards. In spriug, the boards are takeu off, the mulch removed, glass put on, and the heat of tbe sun will soou cause roots to start, when the cuttings must be set out.

*Strawberry Beds* should have their covering put on as soon as the ground begins to freeze. Use straw, salt-hay, marsh-hay, or leaves, placing it thickly between the plants, but put it on lightly directly over them, as too much smothers.

## Kitchen and Market Garden.

Do now whatever the weather will permit to aid in the hurry of spriug. So soon as the ground is cleared of a crop, remove the rubbish, manure and plow. It is best to not harrow after plowing at this season, but leave it rough, as the exposure of the ridged surface to the weather makes the soil of a better texture, especially if at all clayey and heavy.

*Asparagus.*—Cover the bed with a coat of coarse manure. If not already done, burn the tops, as asparagus *as a weed* is a nuisance to be avoided.

*Cold Frames* are uot for growing the plants, but for protecting them in a dormant state through the winter. The sashes should not be put on until freezing weather sets in, which, in the latitude of New York, is generally not until the last of the month. Where the temperature is above freezing, and the sashes are on, they should be tilted up, tbat there may be a circulation of air among the plants.

*Cellars* in which roots are stored should be kept cool, or the roots will shrivel and lose their freshness. Roots keep fresher in pits, or when covered with earth in the cellar. The supply for present use may be kept in barrels or boxes of sand in the house cellar, and replenished from the pits as needed. See last month's Notes for making pits.

*Cabbages.*—Leave out until heavy frosts, and the ground is about to freeze; then pull and place heads down in rows, and cover the heads with a few inches of earth. Where there are mauy, a plow may be used in covering them. Two furrows turned upon the heads will do the bulk of the work, and the spade and hoe will finish the covering. A common method in family gardens is to dig a trench, where water will uot stand, a little deeper than the hight of the cabbages. Set the cabbages in the trench close together, with what earth adheres to the roots. As the weather gets cold, put on a little straw, and when winter fairly sets in, complete the covering to several inches of straw, and put boards over the whole. Soft heads thus stored will become hard and excellent by spriug.

*Celery* should be stored before the ground freezes hard; dig a trench in a dry place, a foot or so wide, and deep enough to bring the tops on a level with the soil. Set in plants closely, side by side, with no earth between. After the trench is filled, cover at first only with a small amount of straw, and add to the covering as the cold increases, until it is about a foot thick. To prevent rain from cutering, boards may be put over the straw lengthwise of the treneh.

*Parsnips.*—A portion for present use may be dug and stored in sand in the cellar, the rest can remain in the ground, as freezing not only does not injure, but improves them. Others may be dug in January.

*Parsley* may be grown for winter use by boring numerous holes in the side of a keg; a crown of parsley is put at each hole, the roots extending inside the keg, which is gradually filled with soil. The tops grow out of the holes. The keg may be placed in a sunny window, and when properly watered, makes an ornament as well as furnishes a good crop of parsley when green things are scarce.

*Carrots and Beets.*—Dig before they have been frozen, and store as directed for other roots.

*Turnips*, being less injured by frosts than beets and carrots, may be left until the last, when they must be dug and pitted, or put in the cellar.

## Flower Garden and Lawn.

The lawn should go into winter quarters with a long coat of grass; hence late mowing is uot advisable. Only the most finely composted manure should be applied to the lawn. So great is the danger of weed seeds in the manure that we prefer to rely upou ashes, guano, nitrate of soda, and similar fertilizers, as the sources of the plant food.

*Bulbs* that are to be housed for the winter should be takeu up before the ground freezes. The earlier hardy ones, as the Hyacinths, Tulips, and the other Dutch bulbs are planted the better.

*Leaves.*—The lawn and paths should be raked after the leaves have fallen, and the refuse used as a litter or protection for tender plants; it improves the grounds, and furnishes a valuable covering.

*Evergreens.*—At this time of the year when the flowers and deciduous leaves are gone, the evergreens show to the best advantage. A diversity of form and variety in shades of green is very pleasing, and the shrubs, when planting, should be arranged with reference to winter effect.

*Winter Protection.*—The large bundles of straw bound tightly about half hardy shrubs are not so commou now as formerly, as they are not necessary. A few evergreen boughs sufficient to break the sharp wiuds and to afford shade, are found to answer the purpose, and at the same time avoid the danger of smothering the plants protected.

*New Beds and Paths* may be laid out, and much like work done after the care of the plants is ended.

*Weeds.*—Any large weeds found in the lawn should be removed, which can be best done by the aid of an old chisel furnished with a long handle.

## Greenhouse and Window Plants.

*Bulbs* may be grown in sand, moss, or in water; but rich soil in pots is the best medium. The bulbs should be put in the pots at once, and placed in a dark, cool room or cellar for several weeks to form good strong roots. Water if needed.

*Plants from the Garden* should have a period of rest, with very little water; those to be forced, as perennial Candy-tuft, Deutzia, Dicentra, and others, may remain in a cool cellar until mid-winter.

*Watering.*—This is an important part of successful plant culture. The pots should be provided with proper drainage by putting in a plenty of broken pieces of pots or oyster-shells. A good thorough wetting when water is needed is better than keeping the surface moist by frequently pouring on a little water. With good drainage, there is but little risk from over-watering. In watering in rooms, use water of the temperature of the air.

*Hanging Baskets* should be hung where they can have au abundance of light and sunshine, and not near the stove or over a register. They should be turned around every day or so, if the light comes mostly from one side, or the plants grow to one side.

*Climbers* add very much to the beauty of a greenhouse or window. English Ivy, Tropæolum, German or Parlor Ivy, etc., are useful for this purpose.

*Annuals.*—Sweet Alyssum and Mignonette should be sown in succession to give a supply for cutting.

*Insects.*—If found on tbe plants in the house, they should be destroyed at once by means of tobacco water or soap-suds. An old tooth-brush may be used on hard-wooded plants. Crush the Mealy Bug by the use of a small pointed stick of soft wood, or give it a drop of alcohol from a small brush.

## Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, from our record kept daily during the year, show at a glance the transactions *for the month ending Oct. 13th*, 1879, and for the corresponding period last year:

1. TRANSACTIONS AT THE NEW YORK MARKETS.

| RECEIPTS. | *Flour.* | *Wheat.* | *Corn.* | *Rye.* | *Barley.* | *Oats* |
|---|---|---|---|---|---|---|
| 28 d's *this* m'th.. | 561,000 | 9,104,000 | 7,043,000 | 582,000 | 497,000 | 1,146,000 |
| 27 d's *last* m'th.. | 426,500 | 6,268,000 | 4,209,000 | 489,000 | 206,000 | 1,287,000 |

| SALES. | *Flour.* | *Wheat.* | *Corn.* | *Rye.* | *Barley.* | *Oats.* |
|---|---|---|---|---|---|---|
| 28 d's *this* m'h | 607,000 | 21,156,000* | 10,265,000* | 851,000 | 152,000 | 2,087,000 |
| 27 d's *last* m'h | 485,000 | 19,130,000* | 7,724,000* | 601,000 | 14,000 | 1,835,000 |

* Including sales for forward delivery.

2. *Comparison with same period at this time last year.*

| RECEIPTS. | *Flour.* | *Wheat.* | *Corn.* | *Rye.* | *Barley.* | *Oats.* |
|---|---|---|---|---|---|---|
| 28 days 1879.. | 561,000 | 9,104,000 | 7,043,000 | 582,000 | 497,000 | 1,146,000 |
| 26 days 1878.. | 462,000 | 7,782,000 | 5,413,000 | 605,000 | 508,000 | 2,311,000 |

| SALES. | *Flour.* | *Wheat.* | *Corn* | *Rye.* | *Barley.* | *Oats.* |
|---|---|---|---|---|---|---|
| 28 days 1879.. | 607,000 | 21,156,000 | 10,265,000 | 851,000 | 152,000 | 2,087,000 |
| 27 days 1878.. | 507,000 | 11,154,000 | 7,845,000 | 617,000 | 312,000 | 2,214,600 |

3. *Exports from New York, Jan. 1, to Oct. 10.*

| | *Flour.* bbls. | *Wheat.* bush. | *Corn.* bush. | *Rye.* bush. | *Barley.* bush. | *Oats.* bush. | *Peas.* bush. |
|---|---|---|---|---|---|---|---|
| '79. | 2,621,000 | 51,473,000 | 28,815,000 | 3,504,000 | 131,000 | 501,000 | 281,000 |
| '78. | 1,892,300 | 41,971,000 | 22,847,400 | 3,421,559 | 1,516,2[illegible]0 | 2,980,300 | 315,200 |
| '77. | 1,105,200 | 10,662,600 | 19,982,250 | 1,632,300 | 803,250 | 157,000 | 190,800 |
| '76. | 1,517,090 | 20,121,369 | 14,245,477 | 816,474 | 39,392 | 460,481 | 470,830 |
| '75. | 1,442,211 | 20,631,499 | 10,760,680 | 154,510 | 225 | 104,323 | 240,832 |

4. *Stock of grain in store at New York.*

| | *Wheat.* bush. | *Corn.* bush. | *Rye.* bush. | *Barley.* bush. | *Oats.* bush. | *Malt.* bush |
|---|---|---|---|---|---|---|
| Oct. 14, '79.. | 2,512,138 | 2,520,780 | 86,753 | 41,079 | 598,063 | 212,672 |
| Oct. 7, '78.. | 1,763,708 | 1,485,046 | 199,913 | 200,275 | 1,216,564 | 125,764 |

CURRENT WHOLESALE PRICES.

| | Sept. 15. | Oct. 14. |
|---|---|---|
| FLOUR—Super to Extra State | $4 00 @ 5 00 | $5 10 @ 6 25 |
| " Super to Extra South'n. | 4 00 @ 6 75 | 5 10 @ 7 75 |
| " Extra Genesee | 5 00 @ 6 25 | 5 75 @ 7 00 |
| " Superfine Western | 4 00 @ 4 50 | 5 10 @ 5 60 |
| " Extra Western | 4 50 @ 8 50 | 5 50 @ 9 00 |
| " " Minnesota | 4 50 @ 8 00 | 5 50 @ 9 00 |
| RYE FLOUR, Superfine | 3 25 @ 4 00 | 3 75 @ 4 50 |
| CORN-MEAL | 2 15 @ 2 75 | 2 45 @ 3 25 |
| OAT MEAL, ℘ bbl | 3 50 @ 6 25 | 4 00 @ 6 50 |
| WHEAT—All kinds of White | 1 00 @ 1 17 | 1 25 @ 1 48 |
| " Red and Amber | 98 @ 1 16 | 1 20 @ 1 40 |
| " Spring | 80 @ 1 10 | 1 15 @ 1 37 |
| CORN—Yellow | 49 @ 59 | 58 @ 65 |
| " White | 49 @ 58 | 58 @ 65 |
| " Mixed | 48 @ 49 | 55 @ 57½ |
| OATS | 32 @ 40 | 37 @ 45 |
| RYE | 66 @ 70 | 85 @ 88 |
| BARLEY | 80 @ 1 15 | 80 @ 1 00 |
| HAY—Bale, ℘ 100 ℔s | 45 @ 85 | 45 @ 85 |
| STRAW, ℘ 100 ℔s | 35 @ 65 | 30 @ 65 |
| COTTON—Middlings, ℘ ℔ | 12⅛@ 12½ | 10½@ 10⅝ |
| HOPS—Crop of 1879, ℘ ℔ | 28 @ 36 | 28 @ 37 |
| " " 1878, ℘ ℔ | 7 @ 18 | 7 @ 18 |
| " olds, ℘ ℔ | 3 @ 10 | 4 @ 10 |
| FEATHERS—Live Geese, ℘ ℔ | 35 @ 47½ | 35 @ 47½ |
| SEED—Clover, West. & St. ℘ ℔ | 6¾@ 8 | 7¼@ 8¾ |
| " Timothy, ℘ bushel | 2 50 @ — | 2 15 @ 2 35 |
| " Flax, ℘ bushel | 1 35 @ 1 40 | 1 35 @ 1 37½ |
| TOBACCO, Kentucky, &c., ℘ ℔ | 2½@ 12 | 2½@ 12 |
| " Seed Leaf, ℘ ℔ | 5 @ 40 | 5 @ 40 |
| WOOL—Domestic Fleece, ℘ ℔ | 20 @ 42 | 22 @ 45 |
| " Domestic, pulled, ℘ ℔ | 18 @ 38 | 22 @ 45 |
| " California | 15 @ 30 | 15 @ 33 |
| TALLOW, ℘ ℔ | 5¾@ 5⅞ | 5⅞@ 6⅛ |
| OIL-CAKE—℘ ton | 27 00 @27 50 | 28 50 @28 75 |
| PORK—Mess, ℘ barrel | 9 00 @ 9 20 | 9 95 @10 25 |
| " Extra Prime, ℘ barrel | 8 25 @ 8 50 | 8 50 @ 9 00 |
| BEEF—Extra mess | 11 50 @12 00 | 11 25 @12 00 |
| LARD, in trcs. & bbls, ℘ 100 ℔ | 6 07½@ 6 55 | 6 05 @ 6 85 |
| BUTTER—State, ℘ ℔ | 6 @ 21 | 12 @ 27 |
| " Western, poor to f'cy, ℔ | 6 @ 19 | 10 @ 27 |
| CHEESE | 3 @ 7¾ | 5 @ 12 |
| EGGS—Fresh, ℘ dozen | 12 @ 17 | 17 @ 19 |
| POULTRY—Fowls, ℘ ℔ | 9 @ 15 | 10 @ 13 |
| " Chickens, ℘ ℔ | 9 @ 17 | 10 @ 14 |
| " Roosters, ℘ ℔ | 5 @ 7 | 5 @ 7 |
| Turkeys—℘ ℔ | 11 @ 15 | 10 @ 13 |
| Geese, ℘ pair | 1 00 @ 2 00 | 1 00 @ 1 50 |
| Ducks, ℘ pair | 40 @ 60 | 40 @ 50 |
| " ℘ ℔ | 10 @ 12½ | 10 @ 16 |
| Capons, ℘ ℔ | 18 @ 25 | 18 @ 25 |
| WOODCOCK, ℘ pair | 75 @ 70 | 50 @ 60 |
| PARTRIDGE, ℘ pair | 90 @ 1 25 | 50 @ 1 00 |
| SNIPE, per doz | 60 @ 2 00 | 50 @ 1 50 |
| PIGEONS, ℘ doz | 75 @ 1 75 | 1 25 @ 2 37½ |
| GROUSE, ℘ pair | 87½@ 1 00 | 75 @ 1 00 |
| APPLES, ℘ barrel | 75 @ 2 25 | 75 @ 1 75 |
| PEARS, ℘ bbl | 1 00 @ 4 00 | 1 50 @ 5 50 |
| " ℘ crate | — @ — | — @ — |
| QUINCES, @ bbl | — @ — | 2 00 @ 5 00 |
| GRAPES, ℘ ℔ | 3 @ 9 | 3 @ 8 |
| " ℘ case | 3 00 @ 3 50 | 3 00 @ 3 50 |
| CRAB APPLES, per bbl | — @ — | 2 50 @ 3 00 |
| PLUMS, ℘ bbl | 3 00 @ 3 00 | 5 00 @10 00 |
| POTATOES, ℘ bbl | 1 00 @ 1 25 | 1 00 @ 1 25 |
| " Sweet, ℘ bbl | 1 50 @ 2 75 | 1 00 @ 2 00 |
| TURNIPS ℘ bbl | 75 @ 1 00 | 75 @ 1 00 |
| TOMATOES, ℘ box | 15 @ 25 | 25 @ 40 |
| BEANS—℘ bushel | 1 20 @ 2 00 | 1 30 @ 1 75 |
| PEAS—Canada, in bond, ℘ bu | 70 @ — | 70 @ — |
| " new, green, ℘ bag | 1 25 @ 2 00 | 1 25 @ 1 75 |
| CORN, GREEN ℘ 100 | 25 @ 1 00 | 35 @ 1 00 |
| LIMA BEANS, ℘ bag | 1 00 @ 1 50 | 1 00 @ 1 75 |
| STRING BEANS, ℘ bag | 50 @ 1 00 | 60 @ 1 00 |
| BROOM-CORN | 2½@ 6½ | 2½@ 6½ |
| CARROTS, ℘ 100 bunches | 75 @ 1 50 | 1 00 @ — |
| BEETS, new, ℘ 100 bunches | 1 00 @ 1 75 | 75 @ 1 25 |
| CABBAGES—℘ 100 | 1 50 @ 4 50 | 1 75 @ 4 00 |
| CAULIFLOWER, ℘ doz | 1 00 @ 5 00 | 50 @ 3 00 |
| ONIONS—℘ bbl | 1 25 @ 2 50 | 1 50 @ 2 50 |
| CRANBERRIES, per bbl | — @ — | 4 50 @ 6 50 |
| SQUASH, ℘ bbl | 60 @ 75 | 50 @ 75 |
| " striped, per doz | 1 00 @ 1 50 | — @ — |
| CUCUMBERS, ℘ 100 | 30 @ 1 12 | — @ — |
| WATERMELONS, ℘ 100 | 3 00 @15 00 | — @ — |
| PUMPKINS, ℘ 100 | — @ — | 2 00 @ 5 00 |
| GREEN PEPPERS, ℘ bbl | — @ — | 1 25 @ 2 00 |
| MUSKMELONS, ℘ bbl | 20 @ 1 25 | — @ — |
| EGG PLANTS, ℘ 100 | 50 @ 1 25 | 5 00 @ 8 00 |
| OKRA, ℘ 100 | 10 @ 15 | 12 @ 15 |

Extraordinary activity in Stocks, Producc, and Merchandise, and resulting in very decided buoyancy in prices have been the features of business, of most interest during the past month. At the Stock Exchange, the transactions have been rapidly increasing in volume, until the unprecedented aggregate of 3,262,000 shares was reached for the week just closed, and prices have been worked up materially all through the list of propertics, recognized in the calls at the Board, leaving off more or less unsettled, through local manipulations of values, with a view of depression....In the Producc and Merchandise lines, the dealings have been on a very extensive scale, and have resulted in another notable rise in values, the markets generally closing quite firmly, with little show of urgency ou the part of holders to place supplies at even current figures,—the general anticipation being of au additional improvement, and, in most connections, a continuously strong range of quotations. The business in Produce and Merchandise has been mainly of a legitimate character, for home consumption, or for export, though speculation has been also quite brisk in a few leading commodities. In Breadstuffs, the transactions have been very large for shipment, home use, and on speculative account, the export movement having been stimulated by the reports of great defic-

iencies in the produce of the crops of Western Europe, and the activity and buoyancy of the foreign markets, which have likewise contributed to quicken and strengthen the speculative interest here. Wheat has been ad-advancing rapidly in the home and foreign markets, reaching the highest point as we write, and showing decided firmness, on unusually heavy trading for prompt and forward delivery. Corn has also improved sharply, winding up strong, on a liberal business, as well for early, as for forward delivery. Rye has been ruling much higher, and meeting with a very ready sale, chiefly to export buyers. Oats have been in more urgent demand and much dearer. Barley has been attracting more attention, and has been quoted towards the close steadier. Flour has followed Wheat in the upward movement, and has shown an important rise for the month.... Provisions have been ruling higher, though variable,—hog products meeting with most demand, chiefly from home trade sources. Butter and Cheese have been quoted up several cents per pound, the former reacting considerably, and the latter also weakening a little towards the close....Wool has been in brisk request, at higher and buoyant prices, the market closing in favor of holders, who are very confident, in view of the reduced and comparatively light supplies now available in the leading markets....Tobacco has been moderately active within the previous range....Cotton declined seriously under free and urgent offerings, and unfavorable advices from England....An extraordinarily active business has occurred in Hops, chiefly for shipment to England, where the home crop failed, to a very serious extent. Prices have been steadily on the advance. The home consumption is also reviving....Metals of all kinds have been rising rapidly in price, on very free dealings. ...Hides, and Leather, also, much dearer, and unusually active....As resulting from the wonderful revival in domestic industries, and commercial interests, the inquiry for Dry Goods, Boots and Shoes, Groceries, etc., in the home markets, has been of remarkable magnitude and urgency at hardening prices...Altogether the month has been one of the most successful, satisfactory, and encouraging, in the business way, which we have ever had occasion to review.

### New York Live-Stock Markets.

RECEIPTS.

| WEEK ENDING | *Beeves.* | *Cows.* | *Calves.* | *Sheep.* | *Swine.* |
|---|---|---|---|---|---|
| Sept. 15 ........ | 12,651 | 187 | 5,561 | 37,130 | 33,661 |
| Sept. 22............. | 12,678 | 202 | 3,451 | 37,073 | 32,391 |
| Sept. 29.......... ... | 12,716 | 191 | 4,227 | 32,151 | 33,969 |
| Oct. 6............. | 9,843 | 326 | 3,597 | 25,753 | 31,546 |
| *Total for* 4 *Weeks*.. | 47,888 | 906 | 15,836 | 132,107 | 131,567 |
| do. *for prev* 4 *Weeks* | 59,358 | 865 | 17,389 | 141,529 | 97,652 |

| | *Beeves.* | *Cows.* | *Calves.* | *Sheep.* | *Swine.* |
|---|---|---|---|---|---|
| *Average per Week*....... | 11,972 | 226 | 4,209 | 33,027 | 32,892 |
| do. do. *last Month* .. | 14,839 | 216 | 4,317 | 35,382 | 24,413 |
| do. do. *prev's Month* . | 12,822 | 178 | 4,411 | 32,947 | 19,351 |

The prices for the past four weeks were as follows:

| WEEK ENDING | *Range.* | *Larger Sales.* | *Aver.* |
|---|---|---|---|
| Sept. 15........... | 8¾@10½c. | 8¾@ 9½c. | 9 c. |
| Sept. 22.......... | 8¾@10¼c. | 8¾@ 9½c. | 9 c. |
| Sept. 29.......... | 6½@10¼c. | 8¾@ 9½c. | 9 c. |
| Oct. 6 .......... | 6 @10½c. | 8¼@ 9¾c. | 8⅝c. |

**Beeves.**—After a somewhat uneventful market during the fore part of the month, the closing week was marked by a surprising and disastrous falling off in the demand, and a corresponding decrease in prices. Without any life or activity in the market, holders found it difficult to sell any of their stock, and impossible to sell all. Wholesale dealers and shippers lost heavily, and at no previous week this year was there so much depression, or so little desire to buy. The closing prices were 6¾@7¼c. ℔ ℔. for Texans, to dress 55 ℔s.; 7½@8c. ℔ ℔. for Colorados of the same quality; poor native steers, 7½@8½c., to dress 56 ℔s.; good to prime steers at 8¾@9¾c., to dress 56 ℔s., and extra at 10@10¼c., to dress 56@58c. per 100....**Cows.**—Common cows are without improvement, the lowest price known in this market, viz., $19, was paid this month for a milking cow. Good milkers have been in better demand, and have sold freely at $45 per head. Extra cows have brought $55 per head.... **Calves.**—An active market has existed for good veals, at 6¼c. ℔ ℔., live weight. Grass calves have been almost unsaleable at 1¾c. ℔ ℔.; fed calves have sold at 2½@3½c., and poor to fair veals at 4@6c. Extra sold for 6½c. ℔ ℔....**Sheep and Lambs.**—There has been a good demand for nearly all kinds of sheep, especially for heavy sheep fit for export; for such stock 4½@5¼c. ℔ ℔. has been paid, and prices were firm a the close at the same rates. Common sheep have been steady, and closed at 3½@4c. ℔ ℔. Lambs were higher at the close of our report, advancing ¼c. ℔ ℔. at a range of 4½@5¾c. ℔ ℔., all live weights....**Swine.**—Live hogs have weakened considerably, and without sales, are quoted at 3¾@4⅛c. ℔ ℔.; light pigs are quoted at 4¼c. There has been no change in dressed hogs, city dressed are in fair demand at 5¼@5⅞c. ℔ ℔.

### Prices of Feed.

| | |
|---|---|
| Bran, per ton.................................... | $16.00@$18.00 |
| Middlings, per ton.............................. | 19.00@ 20.00 |
| Ground Feed, per ton.......................... | 21.00@ 23.00 |
| Linseed-oil-cake, per ton....................... | 35.00@ 40.00 |
| Cotton-seed-meal, per ton...................... | 26.00@ — |
| Chandler's Scraps, per ℔....................... | 2@ 3 |

### Prices of Fertilizers.

| | |
|---|---|
| Nitrate of Potash (95 per cent.), per lb. .......... | 9 @9½c. |
| Sulphate of Potash (potash 44 per cent) per lb.... | 3 @3¼c. |
| do. do. (potash 27½ per cent) per lb.. | 1½@1¾c. |
| German Potash Salts (potash 12 to 15 p. c. p. ton. | $15.00@18.00 |
| Muriate of Potash (potash 50 per cent), per lb.... | 2 @2¼c. |
| Nitrate of Soda, per lb........................... | 4c.@4¼c. |
| Sulphate of Ammonia (25 per cent.), per lb..... | 4c.@4¼c. |
| Dried Blood (ammonia 13 per cent) per ton...... | $40.00@45.00 |
| No. 1. Peruv. Guano 10 p. ct. ammonia, standard, ℔ ton.. | $56.50 |
| do. do. Lobos, do. do. do..... | 47.50 |
| do. do. guaranteed, ℔ ton, cargo K | 56.00 |
| do. do. rectified, per ton, 9.00 p. c. | 65.00 |
| do. do. do. do. 3.40 p. c. | 51.00 |
| Soluble Pacific Guano, ℔ ton........................ | 45.00 |
| Excelsior Fertilizer Works, Fine Ground Raw Bone,... | 55.00 |
| Mapes' Complete Manure (clay soils) per 1,000 lbs...... | 25.00 |
| do. do. do. (light soils) per 1,000 lbs.... .. | 25.00 |
| do. do. do. "A" Brand, (wheat) ℔ 1,000 lbs. | 20.00 |
| do. Bone, strictly pure, meal .....per ton...... | 42.00 |
| do. do. do. medium...... do. | 36.00 |
| do. do. do. dissolved..... do. | 42.00 |
| do. Fruit and Vine Manure.......... do. | 35.00 |
| Stockbridge Rye Manure, per ton | 45.00 |
| " Wheat do do | 45.00 |
| " Seeding Down Manure, per ton...... | 40.00 |
| " Turnip Manure, per ton............... | 50.00 |
| Bowker's Wheat Phosphate, per ton. ............. | 40.00 |
| Baugh's Raw Bone Phosphate, per ton............ | 33.00 |
| Baugh's Manure for Tobacco and Grain, per ton.. | 45.00 |
| Walton, Whann & Co.'s Raw Bone Phosphate.... | 40.00 |
| Gypsum, Nova Scotia, ground, per ton......... | 8.00 |

## HOW TO GET

## $21.50---for----$1.50

The above may appear sensational. But see if it is not, in effect, what may readily be done, thus: If twenty persons in any neighborhood unite and contribute $1.50 each, the Publishers offer not only to send the *American Agriculturist* to *each* of the club from now to the end of 1880, but they offer, *in addition*, to present to such club **$20.00 worth** of any of the **847** really Valuable Books described last month, pages 412 to 415. Now, let some one of the club be named as Keeper or Librarian, and let these $20.00 worth of books circulate around among and be read by *all* the members of the club, and be afterwards kept where *all* will have permanent access to them for reference or re-reading.

In this way *each* contributor of only $1.50 will have this Journal to the amount of $1.50, and in addition the *full use* of the $20 worth of books, and a permanent ownership in them, in common with others. *Practically he gets the permanent use of* $21.50 *for his* $1.50.

It only needs some enterprising person, or two, or three of them, to carry this into practice in *every* neighborhood. Those who do it will be public benefactors.

**Note** *First*, that there is a wide range of choice Books, from the best Publishers, to select from. The Books may be Agricultural, Horticultural, or any other. See the List on pages 412 to 415 in the Supplement to the October number.

**Note** *Second*, that 30, 40, or even 100 persons may join in such an enterprise; the larger the number, the greater the amount *each* will secure. (If 100 persons join, there will be $100.00 worth of Books for each to draw upon; and the same for any greater number or smaller number down to $10. See page 412, first column.

**A Magnificent FAMILY BIBLE,**
**A Valuable COMPOUND MICROSCOPE,**
**A Very Choice Selection of GOOD BOOKS,**
**A Most Excellent, Reliable WATCH,**
**A Very Good Suit of CLOTHES,**
**A Desirable German Student's LAMP,**
**A Variety of Best Silver-Plated WARE,**
**A Dairyman's PERFECT MILK PAIL,**
**A Great Many Things for CHILDREN,**
**and**
**A Hundred Other GOOD THINGS,**

*are easily obtainable, without cash outlay, by almost any one—man, woman, or child even. For particulars, see* **Premium List** *in Supplement of the October American Agriculturist. Any one not receiving it, or desiring a copy, will be supplied on application.*

# That Long Year.

*All* **New** *Subscribers for* 1880, *whose subscriptions come to hand prior to November 5th, will receive the* ***American Agriculturist*** *for November and December of this year without extra charge.*

*Those received on and after November 5th, and prior to December 1st, will receive the paper for December of this year without extra charge.*

*The above applies to* **All** *new subscribers, from whatever source received—including Premium Clubs.*

*Those too distant to receive this number before November 5th, will be allowed* 10 *days after its reception in due course of mail, to take advantage of the above in presenting the paper to their friends.*

## The Remarkable List of Premiums,

described in the large "Supplement" of our last issue has attracted wide attention, not only among our readers, but from the press of the country.

The Supplement should be preserved for reference by all who received it, as a descriptive list of good Articles and choice Books, new and old, many of them new, and all useful.

We suggest that it be looked over again carefully. Note especially the first 22 articles, also those numbered 28, 31, 35, 51, 53, **54**, 60–3, 77, 79, 80, 81, 92 to 115, 125 to 132, 159, 160, 176 to 184, **185**, 209, 212, 218, 219, 220, 248 to 258, 269, 274, 341-3, and 349–51. There is hardly a family in the whole country that does not desire and *need* one or more of these articles as a premium, or by purchase.

There is not a town or neighborhood in all the country where one or more persons of a little enterprise, may not secure one, two, or three of these excellent premium articles without money outlay, and at the same time confer a real benefit upon every person they shall gather into a premium list of subscribers, and readers. It only needs the will —the determination—to do it, and it will be accomplished.

**THIS MONTH** is a good time for the work. All new names for 1880 are entered at once to receive the paper the balance of this year without extra charge. This applies to all new subscribers, including premium lists.

☞ **N. B.**—Premium lists containing two or more names, may be made up of both *new* subscribers, and *old* ones renewing for another year.

## Reasons for Thanksgiving

Omitting the many moral reasons that prompt a hearty giving of Thanks, let us glance at a few of the material ones. First of all may be named the splendid weather which has prevailed all over the country. Up to this writing, October 15, the tenderest out-door plants have been scarcely nipped in this latitude, and killing frosts have occurred in only very limited localities. Every day's freedom from such frosts during the first part of September was worth at least a million dollars to the corn crop. The continued genial weather for the latter part of September and first half of October, not only matured all the summer crops, and extended the good pasture season, but it has also greatly facilitated the putting in of a large area of winter grain, and the finishing up of the summer and autumn work upon the farm. Taking the country together, the weather has been just what the united wishes and wisdom of the great agricultural class *would have asked for!*

The terrible war we passed through, which led to the financial depression and disasters of the five years past and the load of debt, was greatly prolonged if not doubled and more, by the active sympathy of Great Britain and, in a measure, of other western nations of Europe—where some classes would have rejoiced at the downfall of republican institutions in the New World. Does it not seem as if Providence had interposed in our behalf, when we recall the fact that for three years past our country has been blessed with wonderful crops, while the failure of them abroad has opened a market for our immense surplus? And this year, when we needed just such help to aid in the trying ordeal of returning to a sound currency, we have the climax of great crops and unprecedented foreign demand.

Last month we wrote of the great increase of exports, and the inflowing tide of Gold to pay for them. The current has scarcely lessened. From Jan. 1 to Oct. 10th the imports of specie amounted to **$44,294,979,** of which $41,538,895 have arrived since Aug. 1st. Of this amount, $12,826,806 came from Great Britain; $24,255,903 from the Continent of Europe; $4,406,186 from the West Indies and South America,—the whole sum being only a part of the balance to our credit, after deducting our imports, our payment of foreign indebtedness, and for Bonds returned home.—Look a moment at the following two lines from our market reports, in which we have reduced the flour to its equivalent of wheat. The first line shows the exports from New York City alone, from Jan. 1 to Oct. 10; and the second line the average exports from the same place during the three years 1875, 1876, and 1877, the last (1877) being the beginning of our greatly increased exports.

*Exports from New York. January 1 to October 10.*

| *Bushels of Wheat.* | *Corn.* | *Rye.* |
|---|---|---|
| 1879.....64,778,000 | 28,815,000 | 3,504,000 |
| 1875-7, Average...23,912,657 | 14,996,136 | 534,395 |
| Difference....40,965,343 | 13,818,864 | 2,969,605 |
| *Increase* about..**170** *per cent.* | **92** *per cent.* | **556** *per cent.* |

And now as to the prices—the returns received. In writing of our great Dairy interests last month, and expressing our sympathy with those who were suffering on account of the unremunerative returns, we offered the encouragement that the then state of things would not long continue. The improvement has come sooner, or at least much more rapidly, than we dared to predict, or even hope for. As compared with the August prices, Cheese has advanced over 100 per cent, thus doubling its selling value, and Butter has gone up 60 to 70 per cent. The following figures from our market reports, which give a wide range of *wholesale* prices for the various grades, will show the advance in some leading products:

| | *August* 11. | *October* 15. |
|---|---|---|
| Flour, Superfine to Extra State.. | $3.30@$4.75 | $5.10@$6.25 |
| Flour, Superfine Western..... | 3.90@ 4.15 | 5.10@ 5.60 |
| Wheat, all kinds of White..... | 1.00@ 1.15 | 1.29@ 1.52 |
| Wheat, Spring..... | 75@ 1.03 | 1.19@ 1.41 |
| Rye..... | 63@ 67 | 85@ 88 |
| Corn, mixed..... | 44@ 46 | 55@ 57 |
| Wool, Domestic Fleece..... | 18@ 40 | 22@ 46 |
| Pork, Mess, per barrel..... | 8.75@ 9.20 | 9.95@10.25 |
| Lard, per 100 lbs..... | 5.70@ 6.20 | 6.05@ 6.85 |
| Butter, State, per lb..... | 5@ 17 | 12@ 27 |
| Butter, Western poor to fancy... | 5@ 17 | 10@ 27 |
| Cheese..... | 2@ 5½ | 5@ 12 |

Is not this last table alone a sufficient cause for thanksgiving on the part of the great class of producers? But every kind of business is active. Our space being limited, we close with the words of the gentleman who has for a quarter of a century been in our markets daily, and has made up our reports during all that time: "Altogether the past month has been one of the most successful, satisfactory, and encouraging in the business way, which we have ever had occasion to review."

*containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of room elsewhere.*

**The German Edition.**—All the principal articles and engravings that appear in the *American Agriculturist* are reproduced in the German Edition. Besides these, there is a special department, edited by an eminent German cultivator. Our friends can do us a good service by calling the attention of their German neighbors and friends to the fact that they can have the paper in their own language, and those who employ Germans will find this Journal a most useful and acceptable present.

**Can We Recommend Them?**—Several have written to the Editor concerning the articles offered on the Premium List, asking if we can recommend this, or know that to be good, etc. To answer these and to anticipate similar inquiries, we would say, that we know that every article offered as a Premium was selected with the greatest care, and had a thorough examination by one or more of the firm; and we are sure that there is not a single article there that is not the best of its kind, and if one wishes such an article he need not fear its quality.

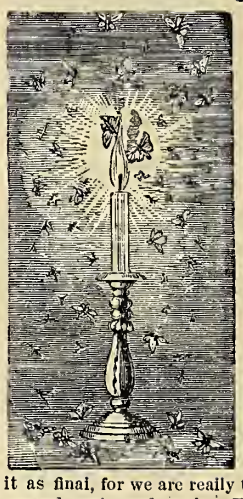
**Messrs. Hooker's Grapes.**—Many who were at the meeting of the American Pomological Society, at Rochester, in September last, visited the nurseries of Messrs. H. E. Hooker & Co., especially to see his grapevines. It would be difficult to find a specimen vineyard in which the vines were so carefully trained, or which could show such an abundant crop of fruit. The vines were trained with horizontal arms and upright canes, and so successfully that there was rarely a blank. To prevent injury by birds, wasps, etc., Mr. Hooker ran a piece of mosquito netting or similar fabric along the trellis on both sides, and as in this method of training, the fruit is restricted to a narrow space, a large vineyard could be protected in this manner with little expense. We saw here the original vine of the Brighton grape, a marvel of fruitfulness. This variety, to our taste, ranks among the very best of our native grapes. There were several good judges present at the time, some of whom regarded the Brighton as preferable to the Delaware—an opinion in which we can concur.

**Ashton's Salt—Premiums.**—In addition to the regular premiums at the Dairy Fair to be held next month, Messrs. Francis D. Moulton & Co., agents in this country, for Ashton's Factory Filled Salt, offer $500 in premiums to be awarded in sums of $50, $75, and $100, for butter and cheese salted with Ashton's salt.

**Tree Planting Laws of Iowa.**—It can scarcely be said hereafter that farmers bear all the burdens of taxation, and have none of the emoluments derived from public expenditures. The exemptions from taxation claimed in Iowa under the Tree Planting Law the present year, as returned by the State Auditor, amount to $5,949,730, upon which the tax is estimated to be $178,492. This saving in payments of taxes and the possession of the fruit trees, together with the improvements of property resulting therefrom, amount in the whole to a respectable bonus. As the exemption amounts to $100 for each acre of orchard planted, it follows that there have been nearly 60,000 acres of fruit trees planted; but 18 counties in the State fail to make claims, and 3 counties claim over $200,000 each; a remarkable report.

**"Worm" for a Name.**—"M. G. S.," Volcano, W. Va. Your specimen is the well known "White Grub," the larva state, not of a moth, but of a beetle, the common May-Beetle, or June-bug, Dor-bug, etc., the brown beetle that, attracted by light, enters the house, and bounces about the ceiling and wall so noisily. The Grub and its work have been frequently described by us; It is a general feeder, eating not only geraniums and potatoes, as in your case, but everything from the roots of grass, to those of young trees. No remedy thus far known, but to *kill*, whenever met with; in the grub state when plowing, in the beetle state when it appears. When a plant wilts, look at the root and a Grub will usually be found.

## Sundry Humbugs.



We do not often get out of patience, but we are driven almost to the extremity of good nature when, after all we have said about stock speculations, there still come letters, often several a day, asking either if some particular circular does not present an exception to our general remarks, or stating the whole case as if it were a perfect novelty, and asking our opinion of the scheme. Many letters ask as to the responsibility of the parties sending out the circulars, or publishing the attractive advertisements, etc. Now, let us say just once more our say on this subject, and we hope our readers will accept it as final, for we are really tired of going over the same ground again and again. We have answered scores of letters by mail, in order to avoid saying anything more in print, but yet they come, and keep coming. Please attend! Individuals and firms, by attractive circulars and advertisements, show how by small investments large sums may be made. They show this by an abundance of figures, and "figures"—it is proverbial—"won't lie." The usual proposition is to send the parties certain sums, which said parties will use in speculating in the Stock Market. There is a plausible attempt to show by figures how a certain sum must make a large profit if invested in "puts and calls," "special privileges," and all the rest of it. Most of our letters inquire as to the money responsibility of the advertisers, and ask if they will do as they agree. So far as our inquiries go, the advertisers appear to have abundant capital, and the question naturally arises, if so much money is to be made, why they do not make it themselves. Whether they will do as they agree, we can not say, but know nothing to the contrary, as, so far as we have observed, they do not "agree" to do much besides receive the money. Now, to answer all letters, for we are through with writing individual replies, we would say, that no business man in New York City would be known to be concerned in the speculations. His credit would be gone at once. No clerk, cashier, teller, book-keeper, or any other in bank, insurance company, mercantile firm, or whatever place of trust, would have it known that he was engaged in "Wall St. Speculations," as he is well aware that his place would be taken from him at once. This is the esteem in which such matters are held by the solid men of business. Now, if our readers think that they know better than the substantial merchants and bankers, with abundant opportunities to know all about Wall St. and its ways, let them act upon their knowledge. We have for years advised leaving such schemes to those who can afford to invest in them. If they will acquire their knowledge through personal experience, let them take the consequences. No doubt many readers think we devote too much space to this matter. Could they see the number of letters that come to us, and the earnestness of the writers, they would think we were right in attempting to save hundreds from venturing their hard earnings in such schemes....Although there has long been a law

PROHIBITING THE USE OF THE MAILS

by lottery dealers, it has been for the most part a dead letter, and though some were at first deterred, circulars, tickets, and the rest have been carried by the mails as freely as ever. Recently Postmasters have had "a ruling" from Headquarters at Washington, which, if generally observed, must practically break up the lottery business—until some method is devised to get around, or over, or under it. Perhaps this may make papers which

ADVERTISE LOTTERY SCHEMES,

in face of the fact of their illegal character, a little cautious, and the uncertainty of the business, if no higher motive, may induce them to exclude such notices from their columns.. .Among the many swindles that are intended especially for the "benefit" of farmers is

"THE VITATIVE COMPOUND,"

which came to us some time ago, with the most remarkable claims. It is sold by one Bingham, of Pennsylvania, and is claimed to be patented by one Waugaman. We shall presently show this name is not the only *gammon* that there is about it. It is sold in boxes, holding about two ounces, for $1, and cheap at that when we consider what it is claimed it will do. We are told that the stuff

"IS PURELY CHEMICAL IN ITS CHARACTER

and effects, containing, in a condensed form, those ingredients *so generally deficient in the soil* [we should hope they might be!] and yet so essential to the immediate

and certain germination of the seed, and the vigorous and rapid growth of the plant."—All sorts of claims, "more vigorous and rapid growth," etc, etc., are made, but the claim that struck us most reads: "It is applied directly to the seed, and not scattered broadcast, as many fertilizers are." It is said that Liebig once predicted the time when the manure for a whole field could be carried in the vest pocket, but here we don't manure the *field* at all. We go to headquarters, and

MANURE THE SEED.

just as the boy Franklin proposed that his father say Grace over the whole barrel of pork. Then, so very "vitative" is the stuff, that we learn that it will not only protect the seed, but "the shoot, against wire-worms, and grubs." So powerful the stuff that we wonder any box could hold it. We, with proper care, laid the box aside for further examination, and, impossible as it may seem, it was actually forgotten. But this compound was so "vitative" that it turned up in North Carolina, and our friend, Prof. A. R. LeDoux, the State Chemist, made it show its "purely chemical" "character" in the "twinkling of a gally-pot." This "Vitative Compound," accordiug to Prof. LeDoux, contains

NOT ONE FERTILIZING INGREDIENT,

but is a miserable mixture of Sugar of Lead and White Vitriol—Acetate of Lead and Sulphate of Zinc!—and the wonderful Wa-gammon, who is said to have patented it, didn't know enough about chemical compounds to be aware that these two salts would decompose one another, so that, practically, the seed would be wetted with a little Acetate of Zinc! The stuff cost about 4 cents, and sold for a dollar, which might be called a "living profit."

THE NORTH CAROLINA EXPERIMENT STATION

has done a very good thing in exposing this humbug, and we thank it for the analysis of the "Vitative Compound."....But the science of humbng, like other science, knows no country—it belongs to the world. The farmers over the horder in Canada are not neglected. We have a handbill which sets forth

ANOTHER SPECIAL HUMBUG FOR FARMERS.

Geo. A. Kay—he has patented, and he will sell to farmers for $5 the inestimable right to make their own manure—not only that, but they can make it in "fifteen new and most economical ways known." For his money the farmer gets tables (not vege-tables, we fear,) by which he can "at once tell to a pound of each element which he has cropped from his soil, and will know to a pound what elements to add back," which is something wonderful. A correspondent writes that the whole affair consists in adding Lime and Potash to a compost heap. The funny thing about it is that the chap claims that

NO ONE CAN USE POTASH WITHOUT HIS PERMIT,

and our friend asks us if he would run any risk in using Potash without paying for the right to do so. Perhaps this Kay has control of wood-ashes also! We are quite sure there is no patent that can prevent the use of anything you please on your land. At most, this Kay only claims to have patented his "inscriptions," whatever they may be. ....We have a brand new humbug—not precisely a "new species," as a naturalist would say, but a "well-marked variety." We will call it

THE BOARDING-HOUSE DODGE,

a variety of the "Hotel Dodge," but more pleasing than that, as people don't make themselves unpleasant by dying, but merely go away. Thus writes F. B. Wickizer, of Great Bend Village, Susquehanna Co., Pa., unto Mr. D., of a town in Indiana:

"I have not heard from you since you left in April. I found your address on a paper in your things. If you want the watches and jewelry you left with me I can send them by mail if you will send me the $1.50 you owe me for board, and 25 cents for postage or, I will send them by express if you send me the $1.50 only. I could have sold 4 of your watches for twenty Dollars each to a fellow who went away last week. [Go West, young man! go West!!] Please send the money for the things as soon as possible or I shall be oblige to sell some of them for pay.

Very Truly F. B. Wickizer

P. S. We have 23 boarders here, some are city people."

That last touch shows "a grace beyond the reach of art." "We have 23 boarders"—you don't say so! Yet even this didn't cover the hook. Wickizer must feel very much disgusted to learn that he fished in the wrong place, and as his correspondent happened to be a boy who "has never been out of his native State," he may say that "the minnows stole his bait." Boy that he is, he reads the *American Agriculturist*, and with proper indignation, he denonuces Wickizer's statement

"AS SIMPLY A FALSEHOOD,"

and "sends it to us (you) as a humbug." He truly says: "If I owed him $1.50, and he had the jewelry of mine, what would he care where I were? He wonldn't take the time and expense to hunt me up."....Oh! Master Charlie, if older heads but had your wisdom—the wisdom to look beyond the bait, and see the hook—the hardest kiud of common sense to see things as they are, there would be no need for us to warn people against humbugs. Our friend Charlie is in luck. Besides the opportunity of getting all those watches and jewelry by paying his old board bill, he has a chance of getting rich.

"THE ROYAL POPULAR MONTHLY GIFT SOIREES"

sends him a batch of tickets, 10 of them, which he has only to sell, and remit $5, and they will send him one ticket in a drawing "in which every ticket will win a Prize." Mr. "Soirees," it is one comfort to know that your jig will soon be up. No more Post-office for you.... In medical matters, there has been nothing new for a long, long time. The most frequent in this line are the "Formula," or "Free Recipe" chaps. These quacks pretend to have either been missionaries themselves, or to have had their recipes, for either

CONSUMPTION OR NERVOUS DEBILITY

"placed in their hands by a missionary," and thus get their advertisements in the columns of the religious papers. We must make for the 100th (more or less) time, a general answer to the inquiries that we can not answer separately, that all but one of these "Free Recipes" that we have examined, call for articles which have no existence. The names are a mere jargon, and have no more real meaning than "Hydrofoetidygnmbo." The circulars state that the drugs are very rare, or do not keep well, and that the advertiser has a stock of the genuine to sell at cost—the cost being $3 to $5. It is all a miserable humbugging dodge, and all the worse because played under the cover of the missionary cause.

## Harvard and Arboriculture.

There is a general impression that our older Universities are somewhat behind the age, and do not meet the requirements of the present time. Harvard is certainly not open to this charge, for besides other indications of a progressive spirit in its management, it has recently established a Professorship of Arboriculture, which is, if we mistake not, the first in any academic institution in the country. The fund left by the late James Arnold, of New Bedford, Mass., having been transferred by its Trustees to Harvard, "The James Arnold Professorship of Arboriculture in HarvardUniversity" has been founded, and its chair has been filled by choosing Mr. Charles S. Sargent to the Professorship. We do not see how a different selection could have been made, as another so well qualified for the position, by natural tastes, or by acquired knowledge, could hardly be found. Prof. Sargent has heretofore been connected with Harvard as Director of the Arboretum and of the Botanic Garden. While the new arrangement leaves him in full control of the Arboretum, it is to be regretted that it deprives the Garden of his services. In the few years that he has held the directorship of the Garden, the improvement there has been strongly marked, and whatever may be its future, the work already done by him in bringing the Garden into shape must have a permanent value. While the work thus far done at the Arboretum of Harvard has been preparatory, yet as a center of arboriculture, it has already had a marked effect upon tree planting and tree culture in Massachusetts. But such influences are not bounded by State lines, whatever is done in one State being useful in every other; hence the founding and development of this Arboretum is by no means a matter of merely local interest, but its experiences and teachings are of great value to tree-planters throughout the country. But few, other than those who know of the interior workings of such an establishment as this Arboretum, are aware of its far-reaching influence, or of the vast correspondence required of its Director, to answer letters from abroad as well as from inquirers at home. With such a center as this, and under the competent control of Professor Sargent, Harvard is exerting an educational influence which will be felt far beyond its academic halls, and this will, in time, prove that, in providing a fund for the promotion of Arboriculture, James Arnold, the New Bedford merchant, "builded better than he knew."

**A Dictionary—Useful and Cheap.**—People who have no other books, want a Dictionary, and the fact of this general want, has induced certain rogues to use the Dictionary as a swindling medium. From the nature of the case, a Dictionary can not be reduced below a certain size, and have it retain its usefulness. One of the best of the smaller works of this kind, is the "American Popular Dictionary," which, for a dollar, gives, besides the Dictionary proper, a large number of treatises and tables most useful for reference to every individual.

**The Beating of Eggs** is a simple matter, for one can do it with a fork, or with a bundle of small twigs. Small as the operation seems to be, the amount of inventive talent that has been expended upon still further simplifying it, is really astonishing. A few years ago we had the curiosity to look up and bring together the various egg-beaters, and the result was an accumulation of machines that was surprising. In egg-beating, as in other such matters, there are certain essentials, and these we found to be combined very completely in the "Dover (Boston, Mass.,) Egg-Beater"—a beater hard to beat.

**Preserving Celery in Winter.**—"J. L. L." and others. Though we give each year in the "Notes about Work" brief seasonable directions for putting away Celery for the winter, it would appear that many do not look there, but finding no special article on the subject, write to us concerning it. It would be well in all such cases to consult the "Notes," not only of the current month, but for one or two earlier numbers. As to Celery—nothing is easier than to keep it for the winter.—Heat and hard freezing are to be avoided, either will cause decay. Dig a trench in a place where water will drain off, a foot wide, and deep enough to take in the whole length of the celery. When there is danger of freezing weather—moderate frosts do not hurt it—take up the celery and set it up in the trench, putting in the plants as close as they will stand, with no earth between, and put on a light covering of straw or leaves. As the cold increases, add more covering, and when winter has fairly set in, increase the covering to about a foot; and put over boards lengthwise, to shed rain. Celery thus stored may be got at when wanted, and if water does not get into the trenches will keep well until the spring months. If one has a cool cellar, celery may be kept in that. Take any old boards and knock together long narrow boxes 9 inches or so wide, and of a hight a little less than that of the plants, and as long as may be convenient; place these boxes in the cellar, and put an inch or two of soil in the bottom of each; set the celery in them the same as in the trenches, and if to stand side by side do not put them nearer than 9 inches. The object is to avoid a solid mass of celery, which will heat and decay. If the cellar has an earth bottom, the boxes may be replaced by board trenches, the boards held up by stakes driven in the cellar bottom, and a passage-way between them. Keep as cool as possible without freezing.

**A Wonderful Liquid.**—Two ounces of a clear, colorless liquid in a bottle, for which we paid 10 cents. Had we needed a pound, it could have been bought for 30 cents. Forty years ago, we saw the same liquid sold for $3 an ounce! But that is not the most wonderful thing about it. A stick of Sulphur, solid, brittle, and light yellow, as every one knows roll Brimstone to be. A stick of Charcoal, solid, brittle, and black—and as unlike Sulphur as can well be. By proper treatment, this Sulphur and Charcoal were brought together, united, and made to form this clear, bright liquid! Can there be anything more wonderful than this? The Sulphur has lost its yellow, the Charcoal its black, the solid form of both has disappeared, and here we have a liquid, and so volatile that it appears to not like being a liquid, but is ready to pass off into vapor at a slight provocation. What greater marvel than this? What of the wonders of chemistry can be more striking? None, save it be the water, the salt, the wood, the—well, the everything around us. But to the liquid, which is known as *Bisulphide of Carbon*. If Charcoal, which is Carbon, is burned in the air, the oxygen of the air unites with the Carbon, to form Carbonic Acid, ordinarily an invisible gas, but which can be, though with great difficulty, condensed into a liquid and a solid. If, instead of burning Carbon (Charcoal) in the air, we burn it in the vapor of Sulphur,—a thing readily done—the Sulphur and Carbon unite, but in this case, the product in passing through a proper cooling tube, will appear as a liquid, the liquid in question, the *Bisulphide of Carbon*—and a very peculiar liquid it is. If one tries to mix it with water, he will find that the two separate as readily as oil and water, and the Bisulphide, being nearly one-fourth heavier, goes to the bottom; but with Alcohol and Ether it mixes readily. It is very volatile, evaporating readily at ordinary temperature, and it would be very difficult to keep, but for the fact that it does not mix with water, and that a layer of water on its surface prevents it from evaporating. Its odor is exceedingly disagreeable. When heated, it boils at about 115°. It burns readily, with a bluish flame, and with the odor of Sulphurous Acid, with which all who have lighted Sulphur matches are familiar. The remarkable reduction in price already mentioned, would indicate that there has been an increased demand, and its manufacture on a large scale. At the period of high price referred to, it was known only as a chemical curiosity. Now it is made by the ton. This increased demand is due to its remarkable solvent properties. The *Bisulphide* is the best solvent for India-rubber and Gutta-percha, and it is largely used in the manufactures of these articles. It dissolves Sulphur, Phosphorons, various Resins, etc., and is used in various processes in the arts. One use is in the extraction of various oils; the *Bisulphide* readily dissolves both volatile and fixed oils, and in many cases affords the most ready method of extracting these from leaves, nuts, etc., the *Bisulphide* being evaporated. Our story of a stick of Charcoal and a roll of Sulphur is already too long, but enough has been said to show that they may produce a truly wonderful liquid.

**Plants and Plant Food.**—Some plants are surface feeders, *i. e.*, their roots are short, usually small, and numerous, and only penetrate the upper portions of the soil, as in the case of the onion, turnip, and the cereals, though the latter are perhaps medium, rather than shallow feeders. It is easy to see that such crops must derive their nourishment from that portion of the soil which their roots penetrate, and are therefore surface exhausting. On the other hand, clover, lucerne, and the long roots, as carrots, parsnips, etc., are deep feeders, and exhaustive to the lower portions of the soil. These facts have a direct bearing on the succession of crops, and the application of fertilizers. If a fertilizer is applied to the land, it tends downward, and its descent depends upon the solubility of the substance and the porosity of the soil. To have, therefore, the least loss and the quickest returns, a surface feeding crop is the one to which to apply the fertilizer, and this crop should be followed by a deeper feeder the next season, which will bring the sinking food to the surface again. It is in this capacity that the clover crop is so valuable in a rotation. It is a great point to keep the plant-food within the reach of the roots of the plant, and it can be best done by applying it to a surface feeding crop, and follow it up (down rather) by a deep feeder, the roots of which penetrate far down.

**Brick Making on the Hudson River.**—Those who fear that the disappearance of timber will cause a want of building material, may be reassured when they learn the great extent of the brick manufacture on the clayey banks of the Hudson River. In travelling from New York to Albany along the River, one may count over 150 yards, each of which is now making from 20 to 140 thousand bricks per day. In 1878, 3,226,120,000 bricks were made, and 3,652 men employed, at an average of $1.25 per day, so that each man produced about 1,000,000 of bricks. Haverstraw is the center of the industry, and 40 yards, one of which is the largest on the river, are worked in the vicinity. Labor-saving machinery of the best kind is now used, and the smallest yards employ these machines for molding and pressing the brick.

**Mulleins.**—"What more stately plants for the 'wild garden' can be found than our common Mulleins?" is the highly commendatory question asked in one of the leading English gardening journals. "The Great American Velvet Plant" is held in high esteem by the lovers of the beautiful, across the water, while with us it is ranked only as a weed. They call it noble, with its "sturdy spike of yellow flowers above a wealth of bold foliage, all enrapt in a thick coating of grey, felted hairs." We call it a coarse, stiff, ungainly intruder, unworthy the room which it too often occupies. This is another illustration of the fact that the commonness of a plant, and the ease with which it may be grown, affects the esteem in which it is held. Our common Poke Root is highly valued in Europe, and it is really a most stately and beautiful plant, which would be valued here were it costly.

**Sulphate of Iron for Grape Mildew.**—Dr. A. W. Saxe, of South Clara, Cal., has reported to the California Academy of Sciences to the effect that he has made a thorough trial of Copperas (Sulphate of Iron) as a remedy for grape mildew and grape rot, with marked success. A solution of Copperas, four pounds to five gallons of water, is made, and applied to the trunk and branches of the vine, they being previously scraped to remove all loose and dead bark. The matter is worthy the attention of grape-growers troubled with the mildew.

**North Carolina Experimental Station.**—Dr. A. R. LeDoux, Chemist, in charge of this Station, has just sent out a Report of the investigations for the past year. The examinations of seeds as to their purity has revealed some striking mixtures; the Dodder seed, for example, making up a good part of some Clover seed. The treatment of the Velvet grass (*Holcus lanatus*), showing that this generally considered worthless grass is of merit as a renovater of worn-out lands in the Southern States, has already been noticed by us, and is of real value. An analysis of the Cow-pea of the Southern States supplies what has long been needed, and gives information that can be found nowhere else. The last third of the Report is devoted to the analyses of fertilizers, which has done much to free the market of worthless brands, and raise the best fertilizers to their proper place. This portion of the work of the Experiment Station is perhaps that in which its utility is more directly manifest than in any other; for it must have already saved large sums to the farmers of the State, and will save still more in the future. North Carolina has a right to be proud of the advanced position she has taken in agricultural matters, and may already be cited as an example to other States. It would be of untold benefit if every intelligent farmer in the State could have this Report and study its teachings.

**International Dairymen's Convention.**—A Convention of Dairymen is to be held December 9th, in connection with the International Dairy Fair. The reasons for this meeting are stated in the following call: "The indications from every part of the country point to the great necessity for the combined effort of all persons interested in dairy cattle, to collect and disseminate authenticated records of the yields of dairy cows, to the end that we may with far greater precision, intelligence, and method than it is now possible to do, improve and fix in our various breeds of cattle higher and more persistent milking qualities, and the ability to transmit those good qualities to their offspring. To accomplish this purpose, we, the undersigned, agree to meet in Convention at the American Institute, in New York City, December 9th, at 12 o'clock M., and organize an association for testing and recording the yields of dairy cows." This call is signed by a number of the leading dairymen of the country.

**Agricultural Depression.**—The British "Royal Commission on Agricultural Depression" has agreed upon the following heads of inquiry: (1), Condition of farms; (2), of farmers; (3), of laborers; (4), land laws; (5), land tenure; (6), agricultural education; (7), condition of estates; (8), agricultural statistics; (9), returns of exports and imports; (10), foreign importations. Full and accurate answers to the many questions which fall under the various heads, will be of great value to others besides those living in Great Britain. Under the last division, "the cost of the article at the American port, the freight, the profits made by the several middlemen," etc., will be of direct interest to us, producers, exporters, and all.

**Tea Culture in the U. S.**—Some of the daily papers have been very fast to accuse the present Commissioner of Agriculture with an attempt to introduce the culture of the Tea-plant into this country, and to treat it as a subject for ridicule. These papers have been, as they often are in all matters relating to agriculture, very wide of the mark. In the first place, whatever the Department of Agriculture has done in the way of encouraging Tea-culture in this country, was done long before the unfortunate appointment of Le Duc, and in whatever of blame or ridicule attaches to the matter he has no share, excepting so far as he attempted to claim the honor or prestige of originating the idea. But is the culture of Tea in the U. S. a proper subject for blame or for ridicule? The editors of these papers think that it is. Men who have devoted years of thought and experiment to the subject think very differently. As an indication that the subject is of no trivial character, but is worthy of serious consideration, the N. Y. Horticultural Society invited Mr. William Saunders, the long-time Superintendent of the Gardens at the Dept. of Agriculture, to address them on Tea Culture in the U. S., which he did on Oct. 7th last. Mr. Saunders, who has held his present position in the Dept. from its first organization, has been interested in Tea culture for many years. Having established the fact that the plant was quite hardy at Washington, and of course in all localities south of that, he set about utilizing this knowledge. It will be observed that he did not at once undertake to get up a "Great United States Consolidated Home-grown Tea Company—Limited"—with an astonishing array of figures and wonderful profits—on paper. But he did try to show that every family south of a certain line, expending annually from $5 upwards for tea, could save these sums by growing their own tea; the light labor of picking the leaves, and of drying them, being done by the members of the family. Believing that there was much unnecessary manipulation about the Chinese methods of preparing tea, Mr. Saunders has not hesitated to say that he believes that in time American ingenuity applied to this will greatly simplify the curing of the leaf, and that ultimately it may become a regular crop. We think that whatever of credit is due for the introduction of tea into this country, belongs mainly to Mr. S.; that he has seen the importance of a gradual rather than a spasmodic growth of the industry, and we regard the whole matter as one worthy of judicious encouragement rather than—what is too often seen—ill-considered ridicule.

**Early and Late Sowing of Wheat.**—Prof. Thorne, of the Ohio State University, has been carrying on some experiments with the early and late sowing of wheat. The early sowings, Sept. 9 and 16, were injured by the Hessian Fly. The third sowing, Sept. 23, proved the best—36 bushels per acre—and the two later sowings, Sept. 30 and Oct. 7, were 32 and 26 bushels, a very rapid decrease. This single set of experiments, so far as it goes, would indicate that neither the early nor late sowing is best, but the medium between them—late enough to escape the greatest ravages of the fly, and not so late that a poor start is made before winter sets in.

**The Western N. Y. Agricultural Society's Fair.**—Feeling that the State of N. Y. was too large for its agriculture to be adequately represented at one Fair, a number of farmers and others in the western part of the State formed a Society, and for several years past have held an exhibition. This year the show was at Rochester, and on the same date with the meeting of the Am. Pomological Society. The Fair was held at the Trotting Park, grounds admirably suited to the purpose. Our visit was on a miserably drizzly day, when everything was wet and uncomfortable; still we could see sufficient to show that the exhibition compared favorably with those held by the State Society, and we learn that, in spite of several unfavorable days, it was on the whole a success. A look about the grounds at this and some other fairs this fall, suggests the thought that our fairs are quite too much the mediums of enterprising shopkeepers. If John Jones transfers the contents of his dry-goods shop, and Wm. Robinson carries his stock of hats and caps to the Fair, it may be very well to make known the shops of Jones and Robinson, but we fail to see how it helps the agriculture of Western N. Y. It would seem that the time had come for a proper consideration of the objects of our fairs, and for the managers to see if they can not be conducted more for the instruction and benefit of farmers than they are at present. Size is not always a mark of excellence. Our remarks are merely suggested by, but do not especially apply to the Western New York Fair, which, in common with many others, was faulty in this respect, but as a whole, most creditable.

**"Mr.," or "Esq.," or 0.**—To "Inquirer," so far as we have observed, the present custom in good society favors the use of the prefix "*Mr.*," instead of the suffix "*Esq.*," when directing a letter to any gentleman whose official position does not call for the *Esq.* While it is a mark of respect to use one or the other of these, it would be decidedly preferable, if all would adopt the Friends' style, and omit any additions to the plain names, in addressing letters by mail to one not clearly entitled to the "Prof.," or "Dr.," or "Hon.," etc., because all such additions, unless written very plainly, are likely to be taken as part of the real name, and thus render the actual address less plain and conspicuous.

**Colored Cheese.**—Common sense has at last triumphed in the matter of coloring cheese. Dairymen used to insist that consumers would have colored cheese, but it is well known that this was all a mistake. The extent of the mistake may be seen by the quotations of the latest Liverpool markets, very choice colored cheese 35 to 36 shillings per 112 lbs., choice white cheese 36 to 38 shillings. This fixes it on a substantial basis.

**The Massachusetts Horticultural Society.**—This Society can now well be called venerable, for it celebrated its Semi-Centennial Anniversary on Sept. 12th last. The celebration was rather exclusive, so far as giving any notice of it goes. The occasion was appropriately marked by an address by the Hon. Marshall P. Wilder, one of its founders, a long time its President, and now, even at his advanced age, one of its most active members. Col. Wilder's address, though prepared during a season of bodily prostration, shows no mental decline, but is a remarkably clear sketch of the first half-century of a Society, the influence of which has been national quite as much as local. It is enough to wish that the second half century of the Society may equal in usefulness that which has now just closed. It is an Institution of which not only Boston and Massachusetts, but the country may be proud, as its influence for good has known no local limits, but has been felt throughout the country, if not in all parts of the world.

**Self-Binders.**—Wire for binding sheaves by binding-machines, was first used in 1874, when 50 tons were consumed. In 1875, 340 tons were required; in 1876, 2,800 tons; in 1877, 6,500 tons; in 1878, 14,000 tons, and a much larger amount, of which we have no returns, was used the past season. This shows a rapid increase in the practice of this method of securing the bundles of grain. For a time, a serious objection arose to this binding, on account of the bits of wire that, despite all care, would often get into the threshers, and if they did not injure the machines, they would appear in fine pieces in the grain. An ingenious inventor has provided a series of permanent magnets which attract these iron bits from the grain passing over them, and withdraw them.

**Building Ice-Houses.**—As this is the season for preparing for a stock of ice, and providing a place to put it in, it may be suggested that to every ice-house, a cold-house for storing meats, vegetables, and fruits, should be attached. Various methods are used in the construction of these, but it may be left safely to the skill of those who know precisely what is required to supply these wants. Those that have not this knowledge will find many hints for their information in previous numbers of the *American Agriculturist* in nearly every year about this season, and doubtless in good season hereafter. The chief rules in building successful ice-houses are, to have a good non-conducting wall; dry packing, well pressed down; solid ice closely packed; perfect drainage with air-tight foundations: ample ventilation at the top. Store the ice in dry cold weather.

**Horse-racing and Side-shows at Fairs.**—It will, of course, be understood that our stated contributor only expresses his own personal "view of the case" in what he says on page 459. The stand always taken by this journal against all efforts to level down, or "bolster up," an agricultural exhibition by introducing horse-racing, or any questionable side-shows, is well known. The largest, and financially the most successful, County Fair we have attended this year was more of a horse racing exhibition than an agricultural fair, by far—and, generally, more than ever before, the largest attention and the highest premiums are bestowed upon a few fast trotters. Shall this go on until the agricultural part of such "fairs" ceases to be of any importance whatever? The question is one of grave importance, and needs the careful thought and the thorough discussions of the wisest heads, who look beyond mere immediate success.

**Poland-Chinas in Australia.**—The D. M. Magie Company, Oxford, O., inform us that they have sent these swine, also called "the Magie," to Australia, and that the gentleman who received them reports that they took the three highest premiums at the great Metropolitan Exhibition of New South Wales. He also writes "such grand swine" as those sent him "were never before seen in Australia." This breed is one of established value, and is becoming widely known.

**The New Jersey State Fair.**—This year's Fair was regarded as the most successful ever held by the prosperous N. J. Society. Our visit was not on "the biggest day," not caring for the "Agricultural Horse Trot," though we must agree with those who advocate it, that it does draw the people, and fill the treasury. A conspicuous feature on the grounds was the Horticultural Hall, which was the large, well-filled "tent on the hill," under the superintendency of our good friend, P.T. Quinn. That this is a remarkable season for pears, was shown by the long tables loaded with this fruit, the favorite Bartlett leading in quantity, with scores of plates of very fine quality. The Women's Department was well filled with useful and ornamental articles, and the Poultry Pavilion contained much of interest. The Incubators were busy at their work, one of them having just turned out—not into a cold world, but a well protected little apartment—30 chicks, with scores more well on the way. If things go on in this fashion, hens can soon give their whole attention to the manufacture of eggs. But details can not be given. The fair was a success in more than one sense.

**New Farms—Immense Number.**—The forthcoming annual report of the General Land Office Commissioner will show that during the two years ending July 1 last, no less than **15,817,093** acres of public lands were taken by actual settlers, fully nine-tenths under the free Homestead act, which allows the actual settlers to take 160 acres each, except in the alternate sections of railroad land grants, where the amount is limited to 80 acres. The above 15,817,093 acres has therefore supplied at least **100,000** *new* farms to that number of persons. During the same period, there have also been very large sales of lands by the various railroad companies. Where the occupants of these new farms have left others further East, the land left has been occupied by others from still further East, or from Europe. It is probably safe to say that there are now some 250,000 more farms under cultivation than there were only two years ago. During the previous three years, the new land taken up amounted to only 3,500,000 to 4,000,000 a year.

**The American Pomological Society** held its 17th biennial session at Rochester, N. Y., Sept. 17-19 last. The meetings took place in a most convenient room in the City Hall, the gathering was large, and much was done to promote the objects of the Society in the way of fixing the status of fruits, the reports on new varieties, etc. The specimens brought by the members were exhibited in an ample tent on the grounds of the Western N. Y. Agricultural Society, which held its fair at the same time. This was, in one respect, a mistake, the grounds being some miles distant from the place of meeting, and one could not see the fruit without losing a meeting. After all, why should there be a general exhibition of fruit at the meetings of the Society? Every member knows the possibilities of Duchesse pears and Concord grapes. Let the exhibition be confined solely to *new* fruits, or to such specimens as settle disputed questions, or illustrate methods of culture, or something of the kind, and leave the exhibition of old and well-known varieties to local societies. If this course were pursued, but very little room would suffice for such an exhibition, and the members could keep together. The members will receive the report of Transactions in the Annual Volume. Greatly to the regret of every one, the President, the Hon. Marshall P. Wilder, was detained at home by the severe accident we have already noticed; he, however, sent his annual address, which was read with much feeling by Dr. John A. Warder, Vice President for Ohio, who presided for a part of the time. Aside from a Vice President for each State, the Constitution was amended to create the office of First Vice President, to which P. Barry was elected, and who presided at the remaining meetings. Notwithstanding that Col. W. declined a re-election, he was unanimously and by acclamation re-chosen to the office he has so long and so acceptably filled; besides the election of Mr. P. Barry, of Rochester, as First Vice President, a Vice President from each State was chosen, and E. W. Buswell, of Massachusetts, was made Treasurer, and Robert Manning, Secretary. In the address of the President, the usual notices of the deaths of those who were, or had been, officially connected with the Society, were given. The list included the names of W. C. Flagg, of Illinois, Secretary at the time of his death; F. R. Elliott, of Ohio, a former Secretary; Silas Moore, Vice President for Rhode Island; Dr. A. P. Wylie, Vice President for South Carollua; and Dr. H. A. Swasey, Vice President for Louisiana. The attentions paid the Society by the citizens of Rochester, were in good taste and acceptable. The place for the next meeting will be fixed by the President, in consultation with the Executive Committee.

**Typhoid Fever Among Swine.**—This disease, which is that known as hog cholera, is by no means an American disease, as is generally supposed. It is now prevalent in several places in England, and many districts where it occurs are isolated by the local authorities, in accordance with law. The affected animals are slaughtered, and an attempt is thus made to prevent the spread of the disease. Unfortunately, this stamping out process is remarkably ineffective, and year after year the disease exists, and causes enormous losses. The only advantage from it seems to be to shift the loss from the shoulders, or pockets, of the owners of diseased stock to those of the public. The results of these long continued efforts to eradicate the disease, by the English Government, are well worth considering with reference to a similar course suggested here.

**Prairie Fires.**—"Frank," Ottawa Co., Kansas, writes that prairie fires are abundant, and do more or less damage, but are not so destructive as one would expect in view of the great exposure of property, and the general neglect to provide any safeguards. The usual remedy, or rather preventive, is to form fire-guards by burning strips or lanes of grass when it may be safely done. A strip of prairie thus deprived of combustible material will act as a barrier to the fire. Our correspondent suggests that this matter should be attended to by the Government, which should organize the people into companies, with proper officers, to have general charge of the means of prevention. Organization of the people by themselves for this purpose would be a good thing, but the less the Government has to do with such matters the better.

**Vermont Merino Sheep Breeders' Association.**—The officers of the above named Association are: N. T. Sprague, Brandon, President; S. G. Holyoke, St. Albans, Vice-President; Ed. Stowell, Cornwall, Treasurer; Albert Chapman, Middlebury, Secretary. A copy of the constitution, etc., may be had of the Secretary.

**Injury to a Cow's Teat.**—"T. C. P.," Baltimore Co., Md. Cow's teats are frequently injured by their being trodden on in the stable, and by other accidents. In treating these, it is well to insert a milking tube in the injured teat, both to draw off the milk and furnish a stiff foundation for the healing process. The cut parts may be brought together with sutures, and should be well strapped with sticking-plaster cut into narrow strips, and well supported by covering the sound parts with the strips as well as the wounded portions. When thus treated, there is no danger of the misplacement of the parts, and as the milk flows away through the tube, there is no inflammatory action from its retention.

**The "National Agricultural Congress"** met at Rochester, N.Y., on Sept. 16, and was held for three days.—"How many members are here?" we asked of one of its principal officers.—"I don't know," was the reply.—"Are there fifty?"—"I could not say, but probably not."—Here were less than 50 men, probably not over 30, who convened as a "National Congress"—not more than would make up a respectable Farmers' Club. Now we would not say one word against the gentlemen who assembled under this oppressive name, "National," for we know that among them were some of the very best men that we have—men who would make any assembly respectable and to be respected—but there are not enough of them to be "National." This Association has the beginning of a society or body which has great possibilities, but so long as it consists of a mere handful of members, it has no proper claim to be considered "National." It would be a good—a most excellent thing, if the leading agriculturists from every State could come together annually and discuss agricultural topics. Can this be done? A nucleus, however small, is of great use in gathering others to itself. Can this present body do this? If it can, then we are heartily in favor of it. But if it is to continue as a select club, wherein one shall show how he increased the length of the parsnips, or another shall show how much Joneses' "High Old Superwhats-its-name" helped the pumpkin crop, the sooner it ceases to call itself "National" the better. We should like to see a "National Agricultural Congress," but it is, so far as present indications go, among the things hoped for.

**Illinois Farm Products.**—We see estimates that the farm products of this great agricultural State will amount to $200,000,000 for the present year, which seems to be a fair calculation, as the total area amounts to 55,410 square miles, or 35,462,400 acres, and a large proportion of it is in productive cultivation or pasturage. An average yield of $5¾ per acre, for all the land, would be $200,000,000—which is double the products of all the gold and silver mines of the entire country.

**A Simple Protection** for metallic surfaces, as of plows, and indeed of all other implements, tools, and many household articles, is a mixture of say a pint of lard and a piece of rosin (resin) the size of an egg, melted with it. This supplies a sort of cheap varnish that may be rubbed on with a cloth very thinly. The rosin will shut out air and moisture, and keep the surface bright. Steel knives and forks kept laid away for occasional use, if smeared with the thinnest film of this mixture, and wiped nearly clean, will be saved from rust. The coat is quickly removed by dipping in hot water, and wiping, when they are brought out for use. This applies to all metal surfaces, steel, iron, brass, etc.

**The American Veterinary College.**—Doct. Liautard and his associates, who have these many years struggled against various difficulties in their efforts in behalf of Veterinary Education, must have been especially gratified on the evening of Oct. 7th. On this occasion the College course for 1879-80 was opened, and the new lecture room was first occupied. To see this room filled with a large and intelligent audience, assembled to hear addresses by Profs. T. A. Lyons and A. W. Stern, who opened the course, indicated an interest in Veterinary Education that must have been gratifying and encouraging. We are glad to know that the College opens with a much larger class than on any former year, and that it includes a large number of well educated young men.

**Tomatoes Rotting.**—Complaints have come from Long Island, from Northern New Jersey, and lastly from Oregon, that there is great loss among tomatoes from a trouble which all agree in calling, "the Tomato Rot." Several years ago a similar complaint came from Westchester Co., N. Y., but we have since heard no more from that locality. It is now too late to learn anything about the trouble this year, but we would ask our friends, wherever it may occur next year, to watch their plants, and on the very first appearance of the rot, to send specimens. In all such troubles, the first step is to learn the nature of the disease. In sending specimens, state the variety of tomato, and if tomatoes have been previously grown on the same soil. Also how long the disease has been known, and the causes assigned for it in the locality. As our Oregon correspondent informs us that his entire crop is lost, the matter becomes one of serious importance.

**The N. Y. Horticultural Society.**—The autumn show of this Society came off Sept. 17-19, at Madison Square Garden, when this spacious building again manifested its peculiar fitness for such an Exhibition. We can not enumerate all that was exhibited, but note some of the most striking features. In the way of flowers and green-house plants, the S. B. Parsons' Sons Co., of Kissena Nurseries, Flushing, L. I., made a fine display, as did W. C. Wilson & Co., N. Y. and Astoria, L. I. This firm took first premium for the best new plant, *Olebachia palustris*, and for a window garden-box, attractively filled with Caladiums, Marantas, Ivies, and other plants; the same firm had an excellent Wardian case. Louis Menaud, of Albany, whose collections are very sure to merit prizes, carried off several for Agaves (12 species), Cacti (50 species), and Succulents (25 species), all in the perfection of growth. The basin of the fountain allowed of the exhibition of several rare aquatics, among which were a *Nelumbium speciosum*, with light purple flowers 8-10 inches across, exhibited by E. D. Sturtevant, Bordentown, N. J., who also had *Nymphæa Devoniensis* and others. Among Palms, J. T. Kennedy, Flatbush, L. I., took the premium for the best single specimen., as did Woolson & Co., Passaic, N. J., for the best collection of Hardy Herbaceous Perennials, of which they had 160. The best cut-flower prize was taken by Peter Henderson, of 35 Cortlandt St., and a remarkably rich collection of new and rare plants came from John S. Bush, Tremont, N. Y. James Vick, of Rochester, N. Y., carried off the prize in Gladioluses. The rare Australian *Stenocarpus Cunninghamii* was shown by Chas. Parnell. Bouquets, floral designs, baskets of dried flowers, grasses, etc., were as

attractive as ever. The Exhibition was more full in fruits than usual. Ellwanger & Barry, Rochester, N. Y., made one of their rare displays—an exhibition in itself, and were first in native grapes, peaches, plums, and in pears, of which they had over 100 varieties. E. P. Roe, Cornwall-on-the-Hudson, N. Y., had strawberries in pots, peaches, grapes, and apples. W. & C. Smith, 189 Broadway, N. Y., took the prize for the best ornamental basket of fruit. Chas. J. Copley, Staten Island, had the best six native grapes. Mr. J. H. Ricketts, Newburgh, N. Y., besides his wonderful grapes had other fruits, including the Miss Brett peach and Souvenir du Congress pear. J. S. Force, Newburgh, N. Y., had fine apples and pears. The prizes for exotic grapes were divided between Peter Henderson and Chas. Aitken. In vegetables, the collection of potatoes by B. K. Bliss & Sons, No. 34 Barclay St., was conspicuous; it included, besides the standard varieties, 51 new seedlings. It is surprising that so few vegetables are presented at these exhibitions. The premiums are liberal, and nowhere is their culture carried to greater perfection than in the vicinity of New York.

(*Basket Items continued on page* 479.)

## Bee Notes for November.

BY L. O. ROOT, MOHAWK, N. Y.

WINTERING BEES.—Numerous inquiries are made as to the cause of the great loss of bees during last winter, and instructions are asked for, which will prevent a similar loss during the coming winter. There is probably no subject of greater interest than this, to both the novice and the experienced bee-keeper. Many who have had experience can succeed in wintering their bees comparatively well, yet I may safely say that none have, as yet, reached uniform success. Why, when a number of colonies, in apparently the same condition, are put into winter quarters, a certain portion of them should winter perfectly, while another portion wastes away, and the stocks become almost if not entirely worthless, is a question which yet puzzles the wisest?... In answer to the first question, as to the cause of loss in the past, I would say that it was probably due to a failure to observe some of the essentials which I shall point out, yet, with the mass of bee-keepers, these failures seem at times almost unavoidable. I predict heavy losses during the coming winter and spring from the same causes. It is notable that the yield of honey from buckwheat and other late blossoms has been very light, and, as a consequence, brood rearing was discontinued at a much earlier date than usual; hence one of the essentials to successful wintering is, to a large degree, lacking. It is important to secure a large number of young bees late in the season, and each colony should possess a sufficient number before it is time to go into winter quarters.

PROPER FOOD FOR WINTER.—Twenty to twenty-five lbs. of well-sealed honey or sugar syrup is the next essential. This amount should not be guessed at, but should be ascertained for each hive by careful weighing.

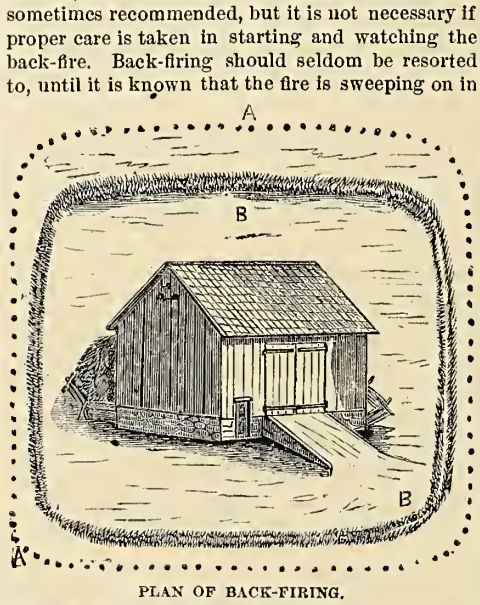
PROPER PLACE TO WINTER BEES.—While it may be desirable, in many warmer localities, to winter bees upon their summer stands, I recommend only in-door wintering for northern latitudes. Many advocate properly arranged, above-ground houses, but I prefer a dry, dark, well-ventilated cellar. If the cellar is not perfectly dry, place a stove in it, and keep a fire until the walls are thoroughly dried. This should be done in time to allow the room to cool before the bees are placed in for winter.

TIME TO TAKE IN BEES.—This is a point of much more importance than usually supposed. The exact date cannot be given, as the length of the seasons varies. With us, the time is usually from the 10th to the last of the present month. They should not be neglected until snow falls, as the hives will be wet, and they should be placed in the room as free from moisture as is possible. They should be handled with care, so that the bees will be as little disturbed as may be. Never make the mistake of closing the entrance to confine the bees to the hive, after placing them in the cellar. It would be far better to raise the hive half an inch from the bottom-board, thus giving an opening on all sides. This would afford better ventilation, and also lessen the liability of the dead bees falling down and closing the entrance if that be small. After the bees are properly arranged, the room should be left dark and as free from noise as may be.

PRESENT SEASON'S RESULTS.—Much interest is expressed as to the result of the present season's work, particularly as to the demand and supply of honey. Reports from all parts of the country indicate that the demand for the best qualities of honey will far exceed the supply. The demand for such honey has been largely increased during the last year, while the supply is one-half less. The best box-honey will be in demand at from 20 to 25 cts., according to the size and nature of the box, while prime extracted honey will be called for at from 15 to 16 cts. I think an acquaintance with the honey market for several years, will warrant these conclusions.

## Back-Firing.

Those who live in the western portions of our country, do not need to be told that the close of autumn is often a season of great danger from fire. Eight years ago, the day on which this is written, Chicago was in flames; and throughout the country, thousands of acres of dry marshes, woodland, and stubble and meadow fields, were on fire. Upon the evening of that memorable day, the writer and several others was fighting fire, and "back-firing," to save farms, houses, and even the lives of the people. Those days of excitement, and nights of terror can never be forgotten, and that the experience there acquired may be useful to others, we will describe, aided by an illustration, the operation of "Back-Firing." It is well known that a fire increases in its fury, so long as its fuel is in abundance, and, therefore as the prairie fire moves on, its heat and rate of progress increases until it is impossible to meet it by a direct attack. We must deprive it of its fuel—this is done by back-firing. Let us suppose that a house, barn, stacks, etc, are in the path of a prairie fire. If nothing is done until the fire approaches very near, the chances are that all will be destroyed. By means of rakes, and if need be scythes, the grass, stubble, etc, is removed from a broad ring, of three rods or so across, the dry material being raked to the inner edge of the ring, as from the dotted circle *A*, *A*, to *B*, *B*, as shown in the engraving. After this space is made clean, and there is no more time to spare, begin at once to back-fire by lighting the grass, etc., along the front, represented by the dotted line, and on the side *only* towards which the fire is approaching. As this fire is in its infancy, it is easily controlled, especially if it is started in but a single place. As it spreads, watch that no sparks get near the buildings. In this way the combustible material may be burned away from all sides of the house and barns, and the approaching flames are met so far away by the opposing fire, that there is no danger from them or the flying sparks. The plowing of a circular belt, the same in shape that we have indicated, to be cleaned of imflammable material, is sometimes recommended, but it is not necessary if proper care is taken in starting and watching the back-fire. Back-firing should seldom be resorted to, until it is known that the fire is sweeping on in




PLAN OF BACK-FIRING.

the path of the buildings, as it may start a fire that may burn over the whole region, and cause great destruction of property. If early back-firing is done before the fires are approaching, a still day should be selected, and if possible, one just on the eve of a storm, that the coming rain may put it out.

**Period of Gestation.**— Beginning with the largest of animals—and there appears to be a relation between size and period of gestation—we have the following table as the average of many records:

| | | | |
|---|---|---|---|
| Elephant | 20-23 Months | Bear | 6 Months. |
| Giraffe | 14 " | Sheep | 5 " |
| Ass | 12 " | Sow | 4 " |
| Mare | 11 " | Dog | 3 " |
| Cow | 9½ " | Cat | 1⅔ " |
| Reindeer | 8 " | Rabbit | 1 " |
| Monkey | 7 " | Guinea Pig | 3 Weeks. |

This period is subject to considerable variation, especially in the case of the domestic animals. The breed, size of animal, heredity and other and unknown, or partially understood, conditions modify the period of which the above are the averages.

## New Jersey Green Sand Marl.

A peculiar saudy deposit, of greenish color, is found in large quantities over a large section of country in Southeastern New Jersey. Three beds of it, the upper, middle, and lower, sometimes all of them in the same locality, and sometimes only one or two of the layers appearing in the same locality. Applied in large quantities to the light sandy soils of Monmouth County, and elsewhere, it has effected a wonderful improvement in their productive value, and, as it is abundant, efforts have been made from time to time to introduce it elsewhere. The Conn. Agr. Experiment Station has recently made a careful analysis of it, given in the first column below. The second column gives the analysis of another sample, made by the N. J. State Geologist:

| | *Conn. Exp, St'n.* | *N. J. Geol.* |
|---|---|---|
| Moisture | 16.70 | 9.66 |
| Combined Water | 3.26 | |
| Sand (Insoluble Silica) | 18 33 | 50.80 |
| Soluble Silica | 26.65 | |
| Oxide of Iron | 23.90 | 17.63 |
| Alumina | | 8.77 |
| Lime | .43 | 2.13 |
| Magnesia | 3.12 | 3 54 |
| Potash | 5.69 | 5.18 |
| Soda | .60 | .... |
| Phosphoric Acid | .90 | 2.24 |
| Sulphuric Acid | .42 | .39 |
| Other undetermined matters | | .... |
| Total | 100.00 | 100.34 |

The first column gives in a ton, 114 lbs. of potash, worth, as a fertilizer, say 4½ cents per lb., or $5.13; and of reverted phosphoric acid, 18 lbs., worth say 9c., or $1.62.—Total value of potash and phosphoric acid, $6.75. By the same reckoning, that of the second column is worth $8.69 per ton. The large amount of soluble silica is believed to have a very favorable effect in cementing the light sandy soils. This deserves the attention of farmers.

## Editorial Correspondence. — Items from Notes by the Way.

[We continue extracts from Mr. Judd's copious notes, gathered during his extended summer tour—as far West as Wyoming and Colorado. No order of time is followed in the selection, but some of the earlier observations made will appear in later numbers. ED.]

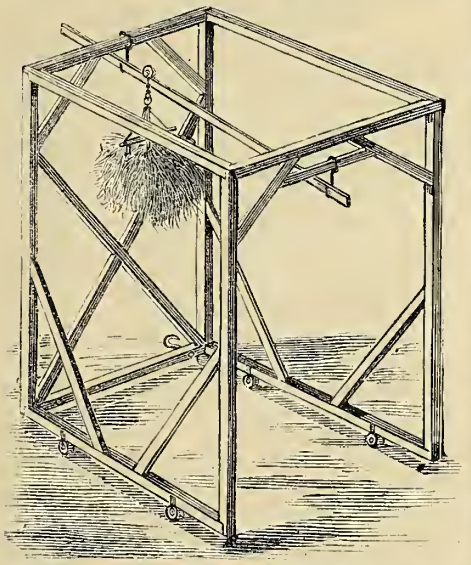
### Personal Property—One County's List.

*Owatonna, Steele Co., Minn.*—The Census to be taken next June will show a wonderful aggregate in many single items. Without considerable thought and figuring, one can faintly appreciate the immense sums expended for any one of the little things that go to make up the comforts and conveniences of individual homes. I have just looked over the Assessor's report of 1879 for this county—one of the smallest in the State, 18 by 24 miles in extent, and embracing only about one-half of one per cent of the total area. (Minnesota comprises 83,531 square miles.) Remembering that it is but a few years since this region was first settled, and taking into account the usual omissions, and low assessment valuations, the following figures are interesting: Number of horses, 5,765; valuation, $252,627. Cattle, 10,458; valuation, $103,398. Sheep, 4,119; valuation, $5,970. Swine, 3,754; valuation, $7,418. Mules and Asses, 132; Wagons and Carriages, 1,953; valuation, $35,608. Agricultural Implements and Machinery, valuation, $70,198. Household and Office Furniture, valuation, $41,726. Melodeons and Organs, 140; valuation, $4,654. Piano Fortes, 64; valuation, $6,595. Sewing and Knitting Machines, 663; valuation, $9,331. Watches and Clocks, 716; valuation, $4,471.—A total of nearly One Million Dollars. Several curious suggestions arise in looking at these figures, as, for example: the Pianos exceed the Sheep in value—perhaps the dog laws are not sufficient, or efficient. The farm implements nearly double in value the household furniture. Horses more than double the Cattle in value. The Musical Instruments reach $11,249, while Sheep and Swine together are only $13,388. The entire Household and office Furniture foots up only one-seventh more than the Wagons and Car-

riages; and these last are just about half the value of the Agricultural Implements and Machinery.

### Stacking with Horse-Pitchforks.

As noted elsewhere [page 377, last month], stacking hay is the almost universal custom in the timberless regions, and the stacks are usually long instead of round. On the farm of Mr. Lucien Williams, Harrison township, Winnebago Co., Ill., we saw a convenient Frame for unloading hay upon these stacks with a horse-pitchfork, which is easily constructed, and has proved successful in practice. We made a sketch of it for the engraving herewith, which will explain its structure and use. The three sills are of 6×6×6-inch timber, the two side ones 20 feet long, and the end one 18 feet long, or its length may be varied to the *width* of stack desired. The four corner uprights and the four plates are of



4×6-inch timber. The hight is say 26 feet—more or less, according to the hight of the stack. The braces are of 2×6 timber. A swinging track-rail is suspended for the pulley carrying the fork. This rail projects a foot or more over the load, which is driven up with its side against the braced end of the frame. The stack is built in at the open end of the frame. A structure 20 feet long, 18 feet broad, and 26 feet high, will suffice for unloading 10 to 12 tons of hay. As soon as the stack fills the length of the frame, the side sills are raised a little with a crowbar or hand-spike, and round billets of wood are put under. Two hooks are indicated in the cross sill, to which a team is attached by a chain, and the frame is quickly and easily moved along just its length, ready to add another section to the stack. The hooks, while convenient, may be dispensed with by putting the draw chain directly around the sill. The whole apparatus is simple, and can be put up by any carpenter. The great saving of labor, and, still more important, the saving of time when hay should be hurried in, will doubly pay for such a structure in a single season, even where only 20 or 30 tons of hay are gathered.

### Form and Size of Hay-Stacks.

The simple covering for hay-stacks [page 377], and the unloading apparatus described above, indicate the one continuous long stack in preference to several small round stacks. There is another strong reason for preferring the long stack. In this form, a larger or smaller amount of hay can at any time be cut off from the end with a hay-knife, or even with an axe, without disturbing the rest of the stack, or exposing it to storms, as rain will not penetrate the smooth-cut end. One, two, three, or more, feet may be cut off at a time, either for feeding out or taking to market. The hight and width of the stack will depend upon its exposure to winds that would blow it over, and upon the total amount of hay, and the quantity to be used daily. The frame described above, with 26 feet posts, would leave room to top off a stack 15 or 18 feet high, with room under the track-rail for taking in the heavy forkfuls. The stacker, by standing on either side of the track-rail, could top it off 20 feet or more high. When the quantity is large, and the daily draft upon it is heavy, and where strong winds are not feared, the stacks may be 18 feet wide at the base, and 18 to 20 feet high, though 15 feet is usually high enough. The larger the stack, the less is the proportional exposure to weather. For limited quantities, and small daily feeding, 10 to 12 feet wide, and 12 to 14 feet high, would be large enough.

### Barbed Wire Fences—New.

The matter of fencing is of great importance everywhere, and especially so all over the hundreds of millions of acres of treeless prairie between the Rocky Mountains and the Mississippi River, and still further eastward, embracing nearly all of the great State of Illinois, and the southern part of Wisconsin. Rails and fence boards are too expensive; the posts alone are a serious item. We have given much attention to this in many former visits, and especially so during this journey. For a long time the simple wires were resorted to, and the chief efforts at improvement looked to devices for keeping up the proper tension during the expansion and contraction of hot and cold weather. But they have always been unsatisfactory. The animals would run against and break them. They would crowd their heads, and often their bodies, between the wires in reaching for a choice bit of better grass, or perchance a cultivated crop, on the other side. Within a few years, various arrangements of

### Barbs, or Sharp Points,

at intervals along the wires, have been provided, and double or triple wires used, twisted together like the strands of a rope, both to hold the barbs, and to diminish the difficulty arising from expansion and contraction of the wires. These were considered a great advance, and have been largely adopted. Indeed, at almost every railway station, and in many baggage cars, we have seen large amounts of these twisted and barbed wires coiled on spools, the projecting point on every side plainly saying, "*Noli me tangere*"—touch me not. We learn that about 40,000 miles of the different varieties of such fencing had been erected up to the end of 1878, and that some 20,000 miles more have been erected this year, so that there are at least

### 60,000 Miles of Barbed Wire Fence,

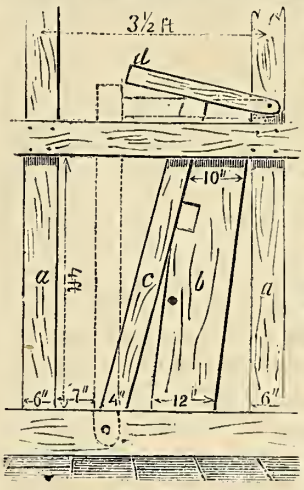
and the manufacturers are now turning out 75 or 80 miles a day, requiring 30 to 40 tons of iron. (A ton, 2,000 lbs., of No. 12 wire will make two miles of three strand, or 2⅔ miles of two-strand fence, four wires high. On the plains of Texas, and where animals are cheap, and the enclosures large, this barbed wire answers well. But there is the serious objection that when animals run blindly against it, or are forced upon it, there is always the danger that long gashes will be cut in the skin. We have found, here and there, farmers strongly opposed to its use, and have had related to us numerous cases of serious injury to valuable animals. Still, many say that it is so great an improvement over the simple wire that they prefer to use it, and run any risk of injury. In a few places, we found

### A New Form of Barbed Fence,

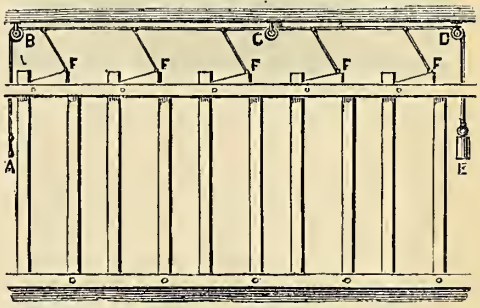
which struck us as a decided improvement. This consists of steel strips, galvanized, with a series of conical projections, at intervals, along one side. The strips are twisted in putting up, and the conical points while sharp enough to repel animals, being of cone form, will not "dig into" and tear the skin. The wide, bright, galvanized, twisted strip is also easily seen by the animals before running against it. [Since returning home we have sought out the manufacturers, and learned from them that the waste of material in cutting out the strips and points is so great that the fence is too expensive for general use. They are now at work, in accordance with our suggestions, preparing a combination of the steel strip supplied with clamps having the cone points, and we have strong hopes that in our next issue we shall be able to announce an arrangement that will be decidedly superior to any thing hitherto produced. If successful, as we feel quite sure it will be, the *American Agriculturist* will, as often before, have assisted in making another very important contribution to our farming interests.]

### Stanchions for Cows.

On most of the Dairy farms we visited, the cows are kept upon floors 4½ feet long, slightly sloping to a urine gutter, and they are fastened with stanchions. Our sketch book contains several varieties of these stanchions, the most convenient one




of which we note here, but do not recall where we saw it. The uprights, *a*, *a*, are of plank, 6 inches wide, set 3½ feet from center to center. The horizontal piece is set high enough to leave 4 feet in the clear under it. The 12-inch plank, *b*, is set inclined as shown in the engraving, one side being cut off to leave it 10 inches wide at the top, and against this the piece *c* falls back. An opening is cut for the hand to conveniently grasp the upright, *c*, which, when closed, leaves the opening for the cow's neck 7 inches wide and 4 feet high. This answers for the average of cows. An animal with an unusually thick neck may require a trifle wider space. The special feature of this stanchion is the fastening or latch *d*, which falls into place whenever *c* is thrown upright, and holds it firmly. Simply raising the end of the latch *d* releases the cow.—[A stanchion somewhat similar to the above is shown in the *American Agriculturist* of October, 1877, with also an arrangement of cords leading from all the latches to one cord at *A*, outside of the stable. The bars




are set to fall back by their own weight. Simply pulling the cord at *A* raises all the latches, releasing all the cows simultaneously, as in the case of a fire, or at any other time when desired. The weight *E* holds the cord back ordinarily, leaving the latches free for use.

### Breaking Prairie Sod—Double Plowing.

The almost universal custom has been to turn over a thin layer of sod, as flat as possible, early in the season, and leave it to rot. Corn is frequently planted at once, and a moderate crop obtained the first season. Wheat is sown in autumn or spring upon the sod turned under the previous May and June, without disturbing it, except to thoroughly harrow the surface. We have found in several Western States a tendency to change this plan. For example, at Schuyler, Neb., (75 miles west of Omaha,) Hon. J. T. Clarkson, with whom we rode some 15 or 20 miles to examine a variety of farms under cultivation, showed us some fields of his own which he first broke last spring, and at once put in various crops, which were doing well when we were there in July. The first plow turned the virgin sod 3 inches deep in the usual manner; but a second plow, following in the furrow, took up an inch or more of the deeper soil, and threw it over the inverted sod. This, harrowed, filled up the interstices between the sods, and furnished a fine soil seed-bed. The fine sub-soil of the Platte Valley may be better adapted for immediate use as a seed-bed without previous exposure to the air, than in some other localities, but probably there is

little, if any, of the loose prairie soil that at the depth of four or five inches would need atmospheric action.....At Marshall, Minn., Mr. E. S. Youmans treated a part of his land thus: It was broken May 10th to July 10th, 1878. Beginning Sept. 15th, the disk harrow or sod-cutter was put on, and the sods cut fine. It was then "back-set," that is, the plow was run deeper, and the cut sods buried under the loose soil turned up. Spring wheat was sown April 6th to April 20th. Though not yet harvested when we were in that region, the indications were that the land thus treated would yield 5 to 7 bushels per acre more than that with the single plowing. Mr. W. L. Nevins had 600 acres of wheat near Tracy, Minn., some 20 miles S. E. of Marshall, of which 540 acres were treated like the above, and the crop promised a yield of 8 bushels per acre more than that upon the simply inverted sod. He sowed the Fife Spring Wheat, 50 quarts to the acre, sowing April 6th to April 16th. Farmers in Eastern Minnesota, with whom we conversed, said that this double plowing and sod cutting was comparatively more valuable for the tougher sods of Western Minnesota and Dakota, than for the less firm and more readily decomposed prairie sod farther East. This is a subject of much interest, and we shall be glad to hear from the experience and observation of several of our readers in different parts of the West.

## Root-Cellars and Root-Houses.

The leading features of a good root cellar are cheapness, nearness to place where the roots are

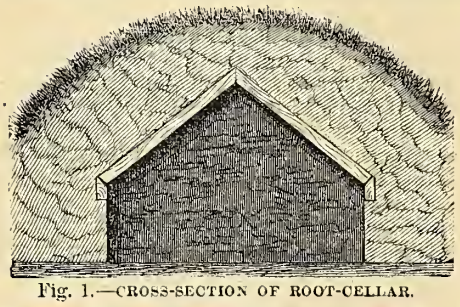


Fig. 1.—CROSS-SECTION OF ROOT-CELLAR.

consumed, dryness, ventilation, and, above all, it should be frost-proof. If a hill-side is handy, it can aid much in securing all of these important points. An excavation is first made in the hill-side, in size depending upon the desired capacity of the cellar, and in it erect a stout frame of timber and planks—or a log-pen, which is often the cheapest—and make upon this a stout roof. The earth that has been excavated, is then thrown over the structure until the whole is covered, top and all, to a depth of two feet or more. A door should be provided upon the exposed side or end. This door may be large enough to enter without stooping, or it may be simply a "man hole," which is better than a regular door, so far as protection from frost is concerned, but is not so handy for putting in and taking out the roots. Sometimes, when the bank is a stiff clay, such houses are built without putting up any side walls, the roof resting directly on the clay. A cross section of such a root cellar is shown in figure 1. In such cases, the facing, or front, of the cellar may be built up with planks, logs, or stones, as circumstances may allow. In figure 2 a facing of stone is shown; this is a large cellar provided with a wide door; it also has a window on each side, which are rarely necessary. Two tight

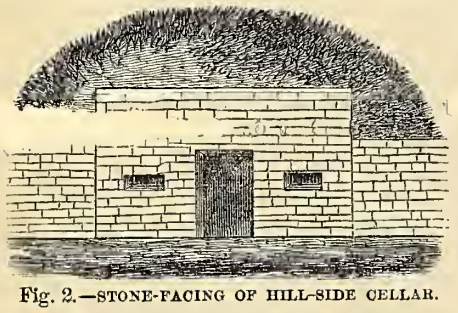


Fig. 2.—STONE-FACING OF HILL-SIDE CELLAR.

fences, of stakes and planks, two feet apart, and with earth filled in between, or of logs, or stout rails used in the same manner, make a cheaper front, and is a better protection against cold than stone. If there is no hill-side convenient, a knoll

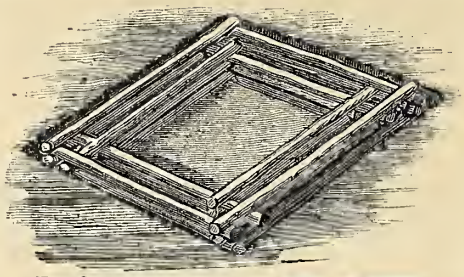


Fig. 3.—EXCAVATION AND BASE OF HOUSE.

or other dry place should be selected, and the soil removed over a space a trifle larger than the ground-plan of the house, and to the depth of two feet or more, provided there is no danger that the bottom will be wet. In the construction of the house, select poles or logs of two sizes, the larger ones to be shorter; these are for the inside pen, as it is subjected to greater strain. The ends of the logs are cut flat, so that they will fit down closely together, and make a pen that is nearly tight. At least two logs in each layer of the inner pen should be cut long enough to pass through and fit into the outer pen, to serve to fasten the two walls together, the space between the two being two feet on each side. Figure 3 shows the excavation, and the beginning of the house-walls, with the method of "locking" them together. The doorway is built up by having short logs, which pass from one layer of poles to the other, and serve as supports to the ends of the wall-poles; this is shown in figure 4, where the house is represented as completed. The space between the two walls is filled with earth, sods being used to fill in between the logs to block the earth. It is best to begin filling in the earth before the walls are completed, as otherwise it will require an undue amount of hard lifting. When the walls are built up to 5 to 6 feet on one side, and about 2 feet higher on the other, to give the necessary slope, the roof is put on, which should be of poles placed close together, well secured to the logs, and covered with sod, 18 inches of earth, and sodded again on the top. Two doors should be provided, one on the inside, and the other on the outer wall, both to fit closely. A filling of straw can be

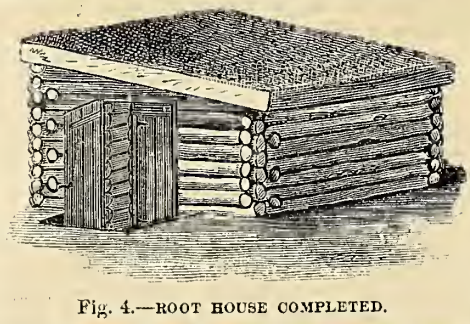


Fig. 4.—ROOT HOUSE COMPLETED.

placed between the doors, if it is found necessary to do so in order to keep out the frost. Figure 4 shows the root-house as thus constructed, and is a structure that will last for many years, paying for its moderate cost many times over.

**The Mothers of Early Lambs.**—Ewes now in lamb, whose lambs are intended for early market, should be separated from the rest of the flock, and kept by themselves. A covered yard having a number of small retired pens, one for each ewe, is most convenient, as each ewe may be examined when necessary, without disturbing the others. Here the ewes should be well fed. A sheep in good condition experiences no trouble in lambing, and the lamb will be thrifty and strong. A run in a field for an hour or two for exercise, is too beneficial to be neglected. Before the lamb arrives, the ewe should be closely tagged about the hind parts and the udder, and this, with all other things needful to be done, should be attended to as soon as may be, and before the ewe's time has nearly approached. When that is about to occur, she should not be disturbed, but left alone as much as possible.

## A Wasteful Interest Paid by Farmers.

There is no disputing the fact that any farm implement, be it wagon, plow, harrow, reaper, rake, or what not, if left exposed to rain and sun for ten years, will be practically good for nothing. We might say in five years, but if any choose to cavil at five, we will say ten. *This is ten per cent per annum!* At a cost of less than *one* per cent, these tools can be kept always housed, or under cover of some kind, even if but rough boards, that will shut out sun and rain. Because we do not see the silent, slow, but steady, waste, we are apt to forget that it is ever going on. It is unnecessary to suggest the "application" of this short sermon. Nine per cent interest *saved* is not to be despised, even if better times are at hand.

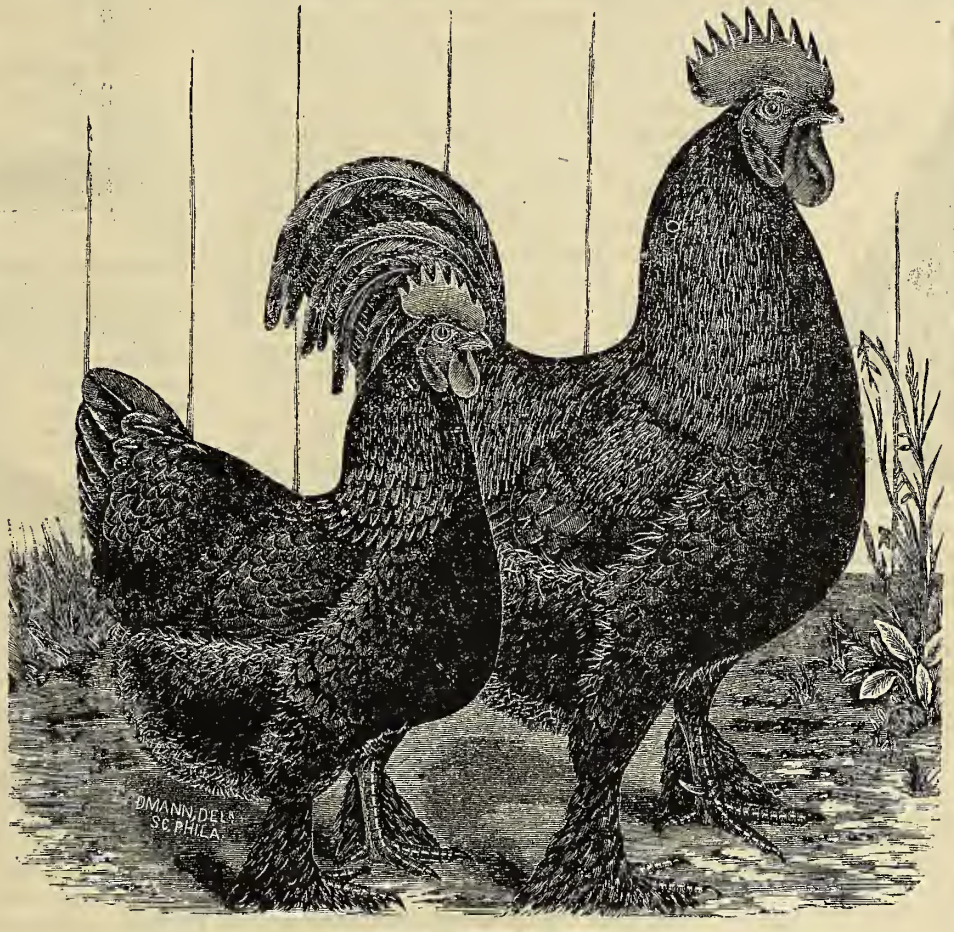
## Ornamental Beds in Winter.

A correspondent at Staten Island, writes that he has his lawn filled with ornamental plants, which the first hard frost will make desolate. He asks if these beds can not be filled with something to present a more attractive appearance during the winter. On Staten Island, through the influence of the sea air, snows remain for a much shorter time, and the surface of the lawn and the beds is bare during a much greater share of the winter, than a few miles inland. There are many other northern localities where the same thing occurs from local causes, and in these, as well as in the uncertain winters farther south, it is desirable to make the beds upon the lawn attractive. It can be done, but it must be prepared for in the spring. The best treatment for such beds is to fill them with Evergreens. There are numerous low-growing Evergreens of a sufficient variety of color to produce pleasing effects. There are various shades of green from the lightest and bluest to the richest and darkest. There are species in which the golden and silver variegation of the foliage are distinct, and, what is of most importance, is held through the winter. The winter is the proper time to visit the nurseries to make selections for this kind of bedding, as in some the color in winter is very different from what it is in summer. The plants, selecting low-growing kinds of different hights, *should be potted* in spring, and carefully grown through the summer, plunge the pots, and shade the plants, for the first season at least; of course, watering must be attended to, and every care given to insure success. The Evergreens should be selected and purchased according to a well-considered plan; and when the beds are cleared, after frosts have despoiled the plants, the Evergreens are to be placed in them, plunging the pots as before, according to the plan European Ivy will make an excellent margin for such a bed, trained carefully, and pinned down where need be; the Ivy may be grown during the summer, and left there all the time, as it makes one of the best margins to the beds in summer for whatever plants they may contain. The Golden Retinispora (*Retinispora plumosa aurea*), is another excellent plant for edgings. It may be kept as low as may be desired, by cutting, and will make a pleasing edging in summer if some plant that presents a good contrast be placed within it. The same plant, but grown taller, will be found useful in contrast with others in filling the beds. Proper attention given in time to selecting the plants will allow of the production of pleasing winter effect.

**Barn-Yards.**—There have been many plans for the improvement of barn-yards, but after all the old-fashioned, dished yard, cemented, puddled, or deeply littered in the center, has hardly been improved upon. If, however, the barn-yard was roofed over, so as to protect it from rains, and the water from the roof were carried to a cistern and used for watering stock in the yard, there could scarcely be a better arrangement. A tight roof is not necessary. A few leaks, even large ones, would not be seriously objectionable; a roof of single boards, laid close together, and pitched and sanded, would cost about $3.00 per 100 feet, and a yard 20 by 50 feet, thus protected, at a cost of $30, would certainly be found a cheaply procured convenience.

## The Langshan Fowls.

The introduction of the Langshan breed of fowls into England, several years ago, was marked by the publication of their portraits in an English journal, a picture which was, in due time, reproduced in our own columns. Though the article published with the engraving plainly indicated that our description of these birds was derived solely from English sources, we received scores of letters asking where the birds could be had, some even asking the price of "your (our) Langshans," and even at the present time we now and then receive similar letters. Though our experience in this matter was somewhat unprofitable in the trouble it gave to reply to inquiries, still it was interesting. While we were aware of the interest in poultry raising, we had before no idea of the avidity with which every promising novelty was seized, and of the wide extent to which this interest prevailed. The Langshans have at length been brought to this country, and in view of the interest our former notice and English picture of them excited, we give an engraving of a pair as they appear in the yards of Messrs. Benson, Maule & Co., Philadelphia. These birds are black, with a strong "beetle-green" reflection, and their legs slate color, with pink between the toes. Their nearest relatives, in appearance, are the Black Cochins, but the Langshans have a more erect carriage, larger combs, and tails more feathered than in that breed, and they come from a locality 1,000 miles further north. Being from the extreme northern portion of China, it was expected that they would prove remarkably hardy, and English experience has shown this to be the case. Extreme hardiness, large size, and rapid growth, are claimed for them, while their flesh is said to be unsurpassed in quality. They are less inclined to sit than other Asiatic breeds, and are prolific winter layers. We are glad that this breed has been introduced, and is now to be procured by our poultry raisers; if in this country they sustain, as they promise to do, the claim made for them in England, they will prove a valuable addition to our choice breeds.




A PAIR OF LANGSHAN FOWLS.

## Among the Farmers.—No. 46.

BY ONE OF THEM.

I write this just in the midst of fair time—the Farmer's Holiday—if he has one in the whole course of the year. I have attended two State Fairs, besides one in the county, and of course have my notions. Two States lie contiguous, one is large, the other is small. The larger State held its fair first. The old and honored Agricultural Society is managed by farmers, "Gentlemen Farmers" if you please, but they are good farmers. Its President is a farmer, its Secretary a farmer, and in its long list of Vice-Presidents, I observe the names of farmers only. It is chartered for the benefit of farmers, and holds its fairs in the midst of agricultural sections, where converging railroad lines and facilities for travel make it convenient to assemble, and masses of people can be accommodated. Liberal prizes are offered and awarded most conscientiously year after year. The greatest effort on the part of the officers and attendants is put forth to secure the safety of goods, and live stock, their fair display, and free return to their exhibitors. Prizes are offered only for articles legitimately connected with the Farm, Garden, and Household. There is no horse racing; there are no trials of speed, which of themselves determine the award of prizes. In all things, the producer's interests have precedence. The prizes are paid, whether the weather be favorable or not, whether the Society reap a harvest of half-dollars, which makes it independent, or meets with such bad weather, or "ill luck," as to be obliged to fall back upon its friends, to make good deficiencies. The services of the best judges obtainable are secured long beforehand; their expenses are paid, and their stay made agreeable to them. One would think that the farmers of a State, supporting a Society like this, would meet the opportunity heartily; would gather in thousands upon its show grounds, bringing their wives and their children, and if they do not compete in friendly rivalry for the prizes, that they would certainly not miss the opportunity offered to see new implements, improved stock, and farm products, which others deem worthy of competition.

The weather was superb, the most comfortable and cheap conveyances to and from the grounds, a large and thrifty town at the gates, and several others within a few hours' journey, with railroads penetrating rich farming and dairy districts in every direction. Yet not more than 10,000 people came at any one day, to the fair, and the farmers and the dairy folks were conspicuously absent. The Society barely taking in money enough to pay its expenses and prizes, if even it did so well as that.

It is often flung in my face as a farmer, and one earnest for the elevation of our agriculture—that farmers are not worth working for—that they are good to make money out of—that they have not the pluck of other craftsmen, to help themselves, but need protection in various ways, and are the prey of the crafty and the dupes of politicians. This is sweeping, but has a basis of truth, and when made on the fair-ground, I found it difficult, as I saw the scattered attendance—the few in place of many—to meet it with an indignant and truthful denial.

It seems there is some rivalry and petty feeling between two Dairymen's Societies, both having their headquarters in this very section where the fair was held, and as a result of this rivalry, the dairy people held aloof from the State Agricultural Society. A clearer case of "biting off one's own nose," can hardly be imagined than was furnished here.

The other State Fair is managed by a Trotting-Park Association, near two large and thriving manufacturing towns. It is only called a "State Fair" by courtesy, and because the State entrusts the Association with the awarding of a few thousand dollars in prizes. It is a purely money making operation — a great show. Each day after the goods have arrived, and are placed, and the cattle and horses accommodated, which takes two days, there is something to see. Horse racing, mountebank, and side shows of all kinds within the grounds, every sort of trap for pennies, is running or set, all the time. An orderly crowd, beautiful horses, excellent cattle of all kinds, and acres of implements in the open field. Judges are invited beforehand, politely treated, and given tickets to dinner in the "Director's dinner tent." The sum total of prizes offered is liberal. Prizes are offered and awarded to "Durhams," and "Alderneys," because neither the officers nor the judges know any better. The exhibitors, some of them at least, are thoroughly informed, and have as fine animals of both "Shorthorn" and "Jersey" breeds, as one often sees. It seemed to be a real piece of good luck if the best animal got the prize over an inferior one in several classes, and yet exhibitors submitted to their fate at the hands of "judges" who were "down on pedigrees," with commendable patience.

Now, as to the attendance—30,000 people were admitted on the principal day; 20,000 the day before, and 10,000 the day after—this, in round numbers. More than half seemed to be farmers. They did not come on account of any real or fancied benefit they might get. Very few studied the implements, or the cattle, they gaped with wonder at the asserted weight of the fat hog, to be seen for 10 cts., but few went to see. They watched the horse-trots, and the "bicycle tournament," and the merry-go-round, and had a good time, and will come again next year. They "did not see any thing very new among the tools," because they did not look, and they walked by three or four Jersey cows, which cost their owner $1,000 to $1,500 apiece, as if they were inferior to those that grazed in their own pastures. Yet they came, and spent their money, and *absorbed* a great deal that will do them good. It will do the boys and girls good too. It will certainly do more good than the great well managed Fair will do the farmers of the section where it was held, and who did not turn out to attend it.

I must say I believe in getting the farmers, and other folks too, out to the Fairs. If they will not come to the sober matter-of-fact strictly agricultural show, let us give them something that will draw. A few horse-trots, side-shows, and even a rope-dancer, are harmless. They help make "a good time" for those who come for that purpose, and the thrifty business view is, that very few things are evil which bring in the half-dollars. I don't subscribe to that sentiment, but we know what is the healing plaster for "the hurt that honor feels."

The facts I have stated are surely worth considering. Here are two Societies, one is solely and purely for the farmers' benefit. The farmers hold aloof. The other uses the farmer and his profession simply to make money out of him, and the farmers throng its gates and crowd its grounds, because those grounds are made attractive. These are the facts; I need to say no more on this subject.

### Thoroughbreds or Grades.

I am more and more impressed by the fact that few persons are fit to breed pure animals, except as they take continual out-crosses and raise thus a sort of grade-thoroughbred. Breeding in line, close breeding, or in-and-in-breeding, is for few to follow. It is this sort of breeding which secures the best types and the strongest blood, and what we hear now-a-days called "prepotency." A lucky hit is made in crossing different families of some breed, then it is followed up, and by systematic and close, but judicious, in-breeding, the type becomes fixed, and if other breeders admire it and it becomes fashionable, fortune comes to the breeder; otherwise he has no special profit. He would no doubt have had better animals if he had used occasional out-crosses, but he would have impaired the prepotency of his strain of blood. If his family is to become famous and popular, he can not afford to lose this quality—if not, he had better not aim so high. Considering, then, the fact that very few can succeed, it is undoubtedly best that very few should try to establish a true family or strain of blood of neat cattle, sheep, swine, or other animals.

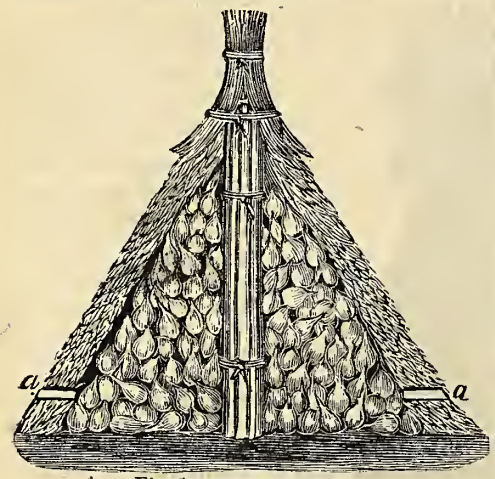


Fig. 1.—SECTION OF PIT.

I am led to these "reflections" primarily from studying "Poland-China," "Jersey-Red" or "Duroc," "Victoria," and "Cheshire" pigs at the Fairs. With the exception of the Jersey-Reds, called Durocs for some unexplained reason, these are all mere crosses which have been bred together until a sort of fixed type has been arrived at in each case. The "Poland-Chinas" have become popular, and are now fast reverting to the Berkshire type from which they were formed. The others are not popular, and never will be in all probability, because we have better breeds ready at hand in the Berkshire, Essex, Yorkshires, and the now established breed of Chester Whites. As to the Jersey-Reds, whatever is good about them is like the Berkshire, and they have such a peculiar color, smooth clean skin, and are withal so hardy north and south, that it is perhaps worth while for some one to undertake their improvement by shortening their faces, setting their ears up, and breeding them finer in bone. Then, with their long bodies, and large meaty hams, they will be excellent pigs for the farmer to grow, even if they never are fashionable.

### The so-called "Holderness" Cattle.

I was very much interested by an exhibition of cattle made at the New York State Fair by Mr. T. A. Cole, of Solsville, N. Y., under the name of "Holderness." It seems that some 50 or 60 years ago cattle were imported to this State from the district of Holderness in the West-Riding of Yorkshire. They were much like the Durhams, as they were then called, had no especial pedigrees, but were excellent milch cows, like those now raised in that district, and called "Common Cows," and which are indeed the mothers of the bulk of recorded Shorthorns of the English Herd-book. Mr. Cole bought a cow said to be of this "Holderness" blood from imported stock, and without any foreign cross. She was in calf to a bull of the same breed, was red and white in color, of large size, and an excellent milker and butter-maker. She had a bull calf, and in due time she was bred to him, and by him and others of her descendants and their produce, bred together without a drop of outside blood, Mr. Cole has formed a curious and interesting breed. The whole stock of this blood numbers now, after 25 years or more since the old cow was purchased, some 250 head more or less. I write from memory. They are all very much alike. The color has changed very noticeably. The calves are all dropped red and white, but after a while change to black and white, or to a dark reddish-brown, nearly black. At the fair casual observers passed them by as Dutch cattle. Several of the older ones were distinctly reddish, while none were jet black like the Fresians or so-called "Holsteins." The cattle of this "Cole-Holderness" breed are of good size and fair form as beef animals. Not unlike those Shorthorns which show especial tendency to milk. They are deep-bodied, with large udders and teats, with excellent escutcheons, great swollen and tortuous milk veins, and skins as yellow as Guernseys. The interior of their ears was almost like orange peel. The butter made from their milk was exhibited by the commission merchant in Utica to whom it is regularly shipped, and showed admirable color and keeping qualities. He showed butter in pound prints made in May, June, July, August, and September. It was all good and high colored, but not quite so deeply yellow as Mr. Ledyard's Guernsey butter which won the prize. These cattle are said to fatten very kindly when dry. They are excellent handlers, and really were a surprise, showing what good judgment in breeding can do with a fixed end in view, and a keen breeder's instincts to guide in pairing, weeding, and feeding. Could we test the various breeds of cattle, with the view of determining with accuracy which is the most profitable dairy cow for all purposes—*butter*, *cheese*, *veal*, and ultimately *beef*—giving to each its fair weight in the scale of excellence, I would not be surprised if Mr. Cole's breed would win the distinction of being the most useful of all.

## A Ventilator for a Root Pit.

In pitting roots, abundant openings should be provided for the escape of the heated air and moisture, produced by the ripening and fermentation of the roots. All moist vegetable matter, when packed closely in a heap or mass, will begin to heat and ferment in the course of a few hours. The heat produces considerable vapor, which must pass off, and in its escape carry off the heat with it, else the temperature will increase, and, before long, decomposition will begin, and the mass will rot. Danger of this is averted, both by having the roots free from outside moisture when pitted, and by facilitating the escape of that which they give off. This is usually done by leaving open spaces every few feet at the top of the pits, into which bundles of straw, or drain tiles are placed, to serve as flues. But it is well to open a ventilator from the bottom of the heap, into which the hot and moist air may escape from all sides. This may be done by tying a number of rails together, as shown at figure 2 (the more crooked the rails, the better, as they will provide more spaces), and placing a bundle in the pits at about every 6 feet of their length. The top of each bundle projects a few inches, and this may be protected by a cap of straw, as shown at figure 1. This cap should be tied firmly to the top of the rails, to secure it from winds, and to shed rain. If small bunches of straw were fixed in the bottom of the pit, as shown at *a*, half-way between the ventilators, and so long as the weather is not too cold, they would greatly facilitate the cooling, and drying of the roots. When frosts are looked for, these bottom air holes should be securely closed, and then the roots can take care of themselves.

Fig. 2.

## Smoke-Houses.

As the season comes around we have, as usual, numerous inquiries for plans of Smoke-houses. Now, that brick is very cheap, buildings of this kind are made of that material rather than of wood. One who is not a mechanic can build of brick as easily as of wood, if not more easily. In fact, an amateur mason would be very apt to make a more solid job than a professional one, because he would use a plenty of mortar and not leave the bricks bare in many of the joints, as is the too frequent fashion with the workmen at present. At figure 1 we give a sectional view of a brick smoke-house, which may be made of any size; one 7 by 9 or 8 by 12 feet will be large enough for private use; but the plan admits of application for the largest sized building. At the bottom of the building is a brick arch, with bricks left out here and there to give passage for the smoke. Above the arch are two series of iron rods, supplied with hooks with grooved wheels, by which the ring with its burden may be pushed back, or drawn forward, as desired. The wheel-hook is shown at figure 1, and can be procured at any hardware store. At figure 2 the house is shown in perspective, with the open arch-way for the fire, and the door provided with steps. Above the lower bar and below the upper one, are a series of ventilating holes through which the smoke may escape. These are made by leaving out a brick, and can be shut by inserting a brick closely in the vacancy. At figure 3 is the arch which confines the fire and ashes, and prevents any meat that may fall from being soiled or burned. A few open spaces will be sufficient to permit the smoke to pass through. This arch is built over a wooden frame (fig. 4), made of a few pieces of boards cut into an oval arch-shape, to which strips of wood are nailed. When the brick work is dry the center is knocked down and removed. A loose door may be made to shut up the arch when the fire is kindled, for safety and economy's sake.

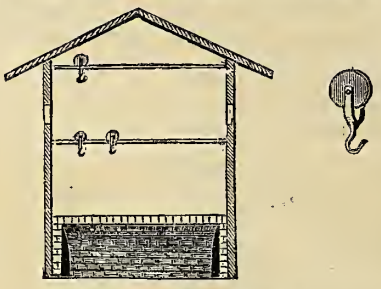


Fig. 1.—SECTIONAL VIEW.

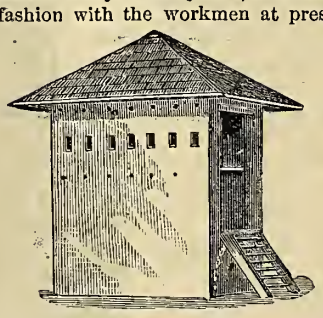


Fig. 2.—ELEVATION.

Fig. 3.—THE ARCH.

Fig. 4.—FRAME FOR ARCH.

**Cotton-Seed Meal.** — This valuable feeding stuff being cheap, may easily be fed to excess. It is highly nitrogenous, and is costive in its effects.

Costiveness is a dangerous condition, because the system becomes overloaded with effete matter which is not carried off by the bowels, and the blood may become poisoned. In feeding this, or any other concentrated food, caution should be exercised lest too much be given. One ounce daily is enough for a young calf; two ounces for a yearling; two pounds for a cow, or four to six pounds for a fattening steer at the finish. It is safe to mix cotton-seed with bran, which will tend to neutralize the costive effects of the former food.

## Restoration of River Banks.

One of the greatest victories of scientific engineering, is to compel natural forces to repair the injuries they have done, or to serve the purposes

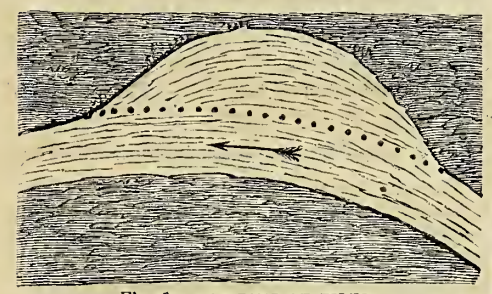


Fig. 1.—POSITION OF PILES.

of mankind in other useful ways. One of the most remarkable engineering achievements of any age, is the opening of the principal mouths of the Mississippi River, by compelling the river to do its own dredging, and to take up and carry out to the Gulf of Mexico, millions of cubic yards of mud and sand, which the waters had previously brought down. This great work was done by constructing long lines of willow work on each side of the channel, and sinking them in mud and securing them there. By this means, a broad, shallow, slow moving current, which had deposited an enormous amount of sediment for many years, was confined to a narrow channel, and the increased velocity of the water consequent upon this confinement scoured out the bed of the river, and moved the sediment miles out to sea. Where formerly only small sloops could float, now the largest ocean ships and steamers can pass in and out, and a most important highway for the commerce of the great West has been opened. What the river has been compelled to do, could have been done in no other way. In another instance which is noteworthy, because it can be applied, in hundreds of cases, to smaller streams which have washed out their banks, and threaten to do further damage, the same river, the Mississippi in its upper portion, was made to fill in a large washout, to restore what it had taken away, and repair its own misehief. At a bend of the river, the banks had been undermined, and high bluffs only remained, which were continually falling and being carried off. It was desired to carry a railroad along the river bank, and the engineer in charge devised the following plan: The washout formed an extensive curve, which had cut in 200 feet from the original bank. To have filled the whole of this, would have been an enormous expense, and no material but stone could have withstood the rapid current. A straight row of piles

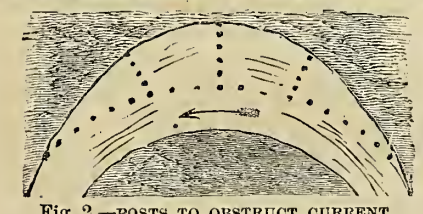


Fig. 2.—POSTS TO OBSTRUCT CURRENT.

was driven in the line where the bank was desired, from one end of the long curve to the other, and stone was dumped around each pile. This arrested the current, and the muddy waters lost their velocity so soon as they met the obstructions. The sand and earth which were suspended in the water, were deposited so soon as the current slacked, and in a few weeks, the whole washout was filled up. This having been done at the June freshet, when the water is unusually high and muddy, a bank, which was several feet above low water, was formed behind the piles and stone, up to the bluffs, and when

Fig. 3.—THE BRUSH.

the river fell to its lower stage, it was easy to complete the work. In this way a large expenditure was avoided, and an embankment was made much more solid, than could have been done by filling in. At figure 1 we give an illustration of the manner of arranging the piles; the piles being represented by the dotted line, and the washout being behind them. There are numerous cases, in which streams have injured their banks, and have carried away valuable ground. The mischief may be remedied in a similar manner to that here related, instead of the more costly plan of building timber and stone breastworks, which, after all, do not replace the lost ground, and only prevent future damage. In like manner a washout may be arrested, as soon as it has begun, and further mischief prevented. At figure 2 a plan is given, for the arrangement of lines of posts to obstruct the current, and cause a filling in of a washout; posts 6 feet long or more, as may be required, or rails will answer in many cases, are put down in pairs, 2 feet apart, where each dot is marked. There should be a row on the original edge of the stream, and cross rows from this to the bank; the spaces between the poles are filled with brush, as shown at figure 3, the brush being placed

Fig. 4.

across stream, as shown by the arrow, to offer the greatest obstruction. The posts may be 20 feet apart, and the brush may be cut in 10 or 12 foot lengths. It is not necessary, and might be objectionable, to entirely close the space with brush, and fence out the current; the object is to admit only a part of the water, and retard the current, so as to cause it to drop its load of sand or mud. The spaces will be half closed if 10 foot brush is used, with 20 foot spaces. The brush is held down, by driving a few hooked poles (figure 4), into the mud between the branches here and there, by which it is kept from washing away. A few loads of stone dropped in the rows around the poles, would be useful. As the deposit accumulates, more brush may be laid down in selected places, and held by the hooked poles, as previously described.

## How to Dress a Beef.

A fat beef may always be prepared for domestic use at this season. To sell a cow or steer for $15, and pay 15 cents a pound for beef, is not a money-making business, yet this is done very frequently. The value of the hide, tallow, heart, head, and liver of a beef will amount to a large portion of the price that can be usually obtained in country places for an aged cow or young steer, and if well fed, the old cow will often produce as good beef or better than the steer. Farmers would oftener consume their own animals, instead of selling them, were they not deterred by the want of knowledge of the manner of slaughtering and dressing a beef animal. There is a way of slaughtering that is not *butchering*, and it may be done painlessly by taking the right course. The barn floor or a clean grass plot in a convenient spot will be a suitable place for the work. To fasten the animal, put a strong rope around the horns, and secure the head in such a way that it can not be moved to any great distance, and in a position to allow a direct blow to be easily given. The eyes may be blinded by tying a cloth around the head so that there will be no dodging to avoid the stroke. The place for the stunning blow is the center of the forehead, between the eyes and a little above them. The right place is shown at *a*, fig. 1. The best method is to fire a ball from a rifle in the exact spot, and this may be done safely when the animal is blinded, by holding the weapon near to the head, so that a miss can not be made; otherwise a blow with the back of an axe made when the striker is on the right side of the animal, and the head is fastened down near the ground, will be equally effective. So soon as the animal falls, the throat is divided with a cut from a long, sharp knife; no jack-knife should be used, but a long, deep, sweeping stroke which reaches to the vertebræ as the head is held back. This divides all the blood vessels, and death is almost instantaneous, but at any rate painless. When the carcass has been freed from blood, it should be turned on its back, and the skin divided from the throat up the brisket, along the belly to the legs, and up the legs to the knees, where the joints should be severed, taking care, however, to cut off the hind feet below the hock joints about 2 or 3 inches. The skin is then stripped from the legs and belly, and

Fig. 1.—THE PROPER PLACE TO STRIKE.

as near to the back as may be by turning the carcass. The belly is then opened, and the intestines taken out; the brisket is cut through, and the lungs and gullet removed. It is now necessary to raise the carcass. This is done on the rack (see fig. 2,) the forward legs of which are placed on each side of the carcass, and the gambrels are placed upon the hooks shown in fig. 2. The legs of the rack are then raised as far as possible, and as the carcass is lifted, the hinder leg is brought up to hold what is gained until the carcass is clear of the ground; the hide is then wholly removed, the carcass washed and scraped from anything adhering, and then divided down through the back-bone, leaving the sides hanging. As a matter of safety from dogs or other dishonest animals, it is well to have the work done in the barn, laying down a quantity of straw to protect the floor, if thought necessary, as the beef should remain at least 12 hours to cool and set.

**Small Artificial Fish-Ponds.**—"T. R. C.," of Keyser, W. Va., informs us that he has "about an acre of low land, nearly water proof, with a spring near by yielding water enough to fill an inch pipe; and wants to know if it is available for a fish-pond, and what *quantity* of fish could be raised in such a pond." He labors under a very common

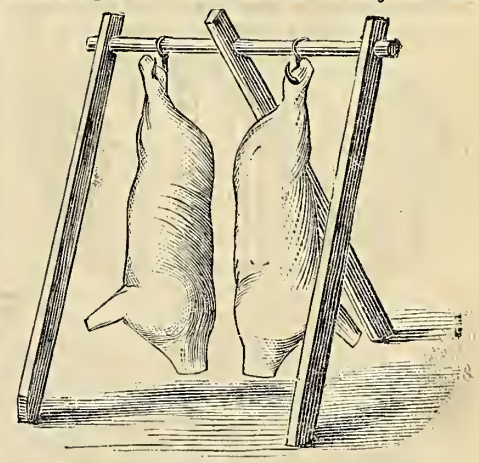


Fig. 2.—RACK FOR A CARCASS OF BEEF.

impression, judging by the number of letters we receive, that a big business in fish culture may be done with a very little water. Fish culture is doing wonders in re-stocking our larger streams and ponds, but it has not yet enabled the most skillful pisciculturist to grow fish on dry land. Seth Green,

in the first enthusiasm of his discovery of the shad-hatching box, prophesied that he could make shad so plenty in the Connecticut at Hadley Falls, that he could drive a horse and buggy across the river upon the backs of the shad! But then he had all the water in the river and in the ocean to work with, and a fertile imagination. Trout can not live through the summer in water much above 60° F. temperature, and a pond of an acre supplied by an inch pipe of spring water would probably reach 80° in the summer heats. Trout can be hatched in a very small stream of spring water. The difficulty lies in keeping them through the hot weather. The pond in question is quite too small for black bass. They must have lively running water, large mill-streams or ponds of twenty acres or more area, to make the raising of them a paying business. As a rule, it will only pay to stock rivers and ponds, especially those with hard bottom, with black bass.

## Hints and Helps for Farmers.

TO FASTEN A PIG IN A WAGON OR SLED.—When it is desired to carry a pig in a wagon box, the animal may be secured in the manner described by

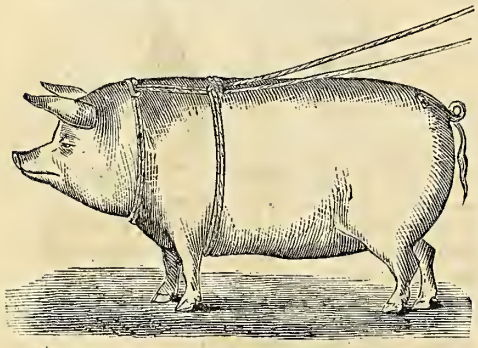


Fig. 1.—MANNER OF ARRANGING THE ROPE.

a correspondent in Kansas, as follows: Make a loop in a doubled rope, and put it around the throat; carry the rope over the head, and fasten it around the body behind the fore-legs, leaving the two ends free over the shoulders. The pig being lifted into the wagon is held down by fastening the ends of the rope in any safe manner, so that the pig can not jump over the sides of the box, and is compelled to stay in the middle. The method of arranging the rope is shown at figure 1. If the pig is made to lie down, it can not rise when fastened, and there is no danger of it hurting itself.

A PORTABLE FODDER RACK.—A friend from Indiana sends a sketch of a portable hay and fodder rack for feeding cattle and sheep while the weather is suitable for out-door feeding, which can easily be moved from place to place. The size can be varied to suit the choice of the builder. The one here represented is 20 feet long, 3½ feet wide at bottom, and 4½ feet wide at top, and 5 feet high. This size will hold a small wagon-load of hay. The

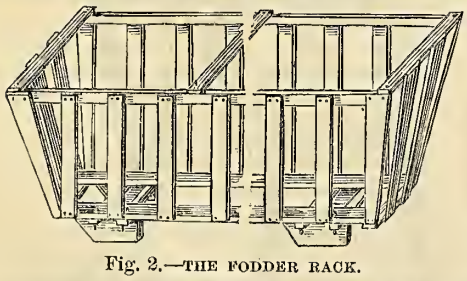


Fig. 2.—THE FODDER RACK.

runners upon which the rack rests are 3 feet long, 3½ inches thick, and are pinned fast to the sills with 1-inch wooden pins. The sills are 2 by 5-inch stuff, and placed broadside upon the runners. The top rails are 2 by 4-inch, and set edgewise. The cross pieces are 2 by 4-inch, and are bolted to the sills and top rails by ½-inch bolts. The siding is 1 by 6-inch plank, 5 feet long, and is nailed to the sills and top rails. The sills and rails should be of hard-wood, with boards placed in the bottom for a floor, shown open in the engraving.

A LEAF RAKE.—Leaves are valuable litter. If used for no other purpose, they should be gathered and kept as bedding for farrowing sows or for lambing ewes. There is no softer, warmer, dryer, or safer bed for young animals than leaves. They

Fig. 3.—A LEAF RAKE.

are also valuable for manurial purposes, and where a sufficient supply can be obtained, the straw may be used for fodder. To gather the leaves readily, a long-headed rake may be used, and as the ground is rough the rake should be made strong. A hickory stick 1¼-inch thick will serve as a handle; the head may be of pine or willow if it is strengthened with bolts, as shown at figure 3. The teeth should be of hickory or white oak. Unless the teeth are thick and strong, and the head strengthened by bolts, either or both are liable to break when used.

A BAG HOLDER.—To enable one man to do the work previously done by two, may be as useful as to cause two blades of grass to grow where one grew before. A labor-saving contrivance of this kind is shown at figure 4. It is a bag holder, and consists of a platform resting upon rounded and smooth runners, and having a standard at the rear. This is notched as shown in the engraving, and has a forked arm pivoted by a bolt at the top. This arm has a cross-piece about the middle, upon which are two small hooks turned backwards, and a brace which fits into a rack on the standard. When the holder is not in use, the arm is let down; while in use, it is supported by the brace. The bag is held by the hooks and by the edge being turned over the ends of the arm.

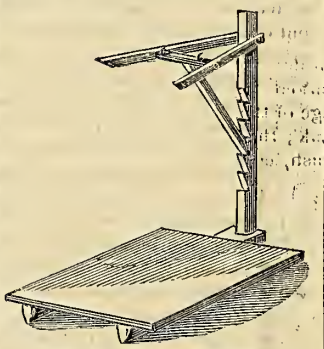


Fig. 4.—A BAG HOLDER.

## A Floating Bridge, or Pontoon.

A "subscriber," New Haven, Conn., has a farm, through which runs a river 200 feet in width; to be

Fig. 1.—LONGITUDINAL SECTION.

able to cross this river, will save a roundabout journey of two miles over a hilly road; he wants a floating bridge to enable him to save this expensive journey. This is a case typical of many, and may be remedied by the small expense of building a pontoon bridge. This may be made as follows. Procure 1¼-inch spruce or pine planks 12 feet long; of these construct a pontoon 24 feet long, and 12 feet wide, laying the planks crosswise. The longitudinal section will be in the form shown at figure 1. The interior is shown at figure 2. This is strengthened by a longitudinal bed-piece through the center, to which the planks are fastened with iron screw bolts. Three pairs of knees, (fig. 3), will serve to strengthen the sides, and as a place to which to bolt the side planks. The joints are made as tight as possible, by calking with hemp, and the outside and inside are thoroughly coated with pitch. The vessel is divided by three partitions, into four

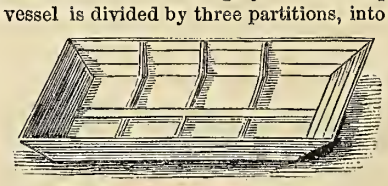


Fig. 2.—THE INSIDE OF BOAT.

parts, which lessen the risk of leakage. A hole is cut through the deck into each division, through which a hand-pump may be inserted, when it is necessary to clear out the water. The deck is supported by a middle partition over the center bed-piece. A pair of posts should be fixed on each side, made so as to carry a tie-bar, to which the horses should be well secured. The wagon should be securely blocked before and behind, lest the horse may at any time become restive. The bridge may be drawn over by means of a windlass, fixed upon it, and upon which a few turns of a rope may be taken; this rope will pass through a pulley attached to a post on each bank of the river. A pontoon of this size, two feet deep, would have a carrying capacity of over 12 tons, and one a foot deep, would support 8 tons, including its own weight, which would be about a ton and a half. It would in fact support a team and loaded wagon even when the boat was filled with water, although it should never be put to such an extremity.

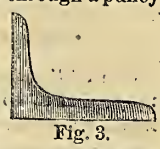


Fig. 3.

## The Benefits of Sugar-Beet Culture.

We have frequently referred to the advantages promised by the culture of sugar beets for the manufacture of sugar. But a great industry does not grow, blossom, and become fruitful in a year, or in a few years. Yet its final success is hastened by the ease with which the raw material can be procured. If sugar beets were now grown as plentifully as potatoes, sugar factories would be as numerous as starch factories. It was the abundant supply of potatoes that temped the starch manufacturers to build their factories, and offer a steady market for the farmers' produce. Let sugar beets once become a staple product of our farms, and the only obstacle to the establishment of a vast business in sugar making would be removed. Sugar beets can be made profitable for feeding, and not only so, but the effect of the culture upon our system of agriculture can not fail to be so advantageous as to invite farmers to adopt it, if but for its own value alone. Root culture implies good farming, for with poor farming one can not grow roots. Roots may be grown upon poor land, by using the proper fertilizers and methods of culture, and there is no better method than this of working up the soil to a good condition. For if one grows a quantity of roots, these must be fed, and they can not be fed without making a large quantity of manure; further, they can not be fed with the greatest profit without the addition of some concentrated food, and that involves rich as well as abundant manure. Besides, in using roots and meal as a daily ration for cattle or sheep, it is found that straw will be consumed with avidity; in fact, it makes an excellent substitute for hay, and uses up profitably a waste product that is generally used only for litter. An idea is prevalent that root culture is costly. It may be at first under certain circumstances; as upon a poor soil and one foul with weeds, and especially under careless management. It may be made costly when, by neglect at a critical time, the whole crop is lost by being buried in weeds. But that is not the fault of the crop, but of the management. The seed for an acre of ground costs $6; that is, for Sugar Beets, which may be grown closer than Mangels; 12 lbs. of seed being needed for an acre; the cost of cultivation need be no more than for a crop of potatoes. The yield will be of considerably greater value than that of potatoes, reaching, under favorable circumstances, 800 bushels per acre, or 25 tons. For feeding, the sugar-beet is worth more than double the quantity of mangels, as it contains more than twice as much solid matter, so that 25 tons per acre is equivalent to as large a crop of the grosser mangels, as can be expected under the most favorable conditions. The direct profit is then attractive enough to induce farmers to raise Sugar Beets merely for feeding purposes, while the indirect profit arising from the improved condition of the soil, gives a respectable return in addition. When the culture of Sugar Beets then becomes general, there will doubtless be no lack of capital to work them into sugar, any more than there would be to operate a silver or a gold mine that might be discovered on a man's farm. It is the

want of material that has kept back enterprise in this line; the men and the money are always ready to develop any staple and profitable raw material.

## A Weighing Box and Attachments.

Mr. "R. L. M.," Washington, Pa., sends us sketches of a method of home weighing, which he finds very convenient and describes as follows: A farmer, with a few hogs or sheep to sell, often feels at a loss for proper scales with which to weigh them, in order that he may tell the buyer the exact weight of the lot, or, if to be weighed elsewhere, for his own satisfaction. I send you a rough sketch of a weighing box that may be used with a common steelyard beam of not more than 350 lbs. capacity. We have been using one on the farm for several years, and find it very convenient, as it has many times saved us the trouble of driving stock 3 or 4 miles to large scales that may not be as accurate. The sides of the box are 3 by 5 feet, and may be made of pine or poplar strips of 3 inches wide and ¾ inch thick; the gate, *A*, is of the same material. The corner posts should be of oak

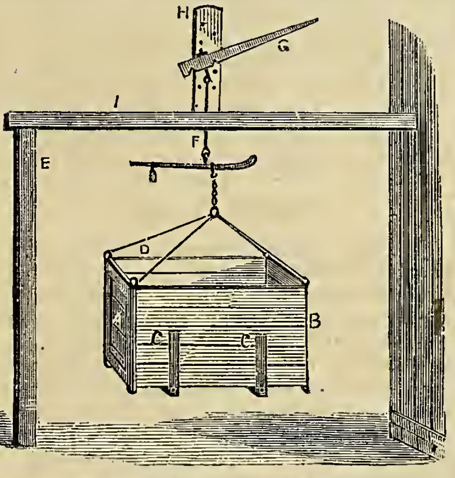



Fig. 1.—THE WEIGHING BOX.

(as it holds the nails better), 2 by 3 inches and 3 feet long. The floor is fastened in by notching a 1 by 2-inch piece on the sides of the posts, *B*, at the lower end, and nailing or screwing tight. Strips, *C*, *C*, are nailed to the sides, and half-inch holes bored in them at the dots, into which stays are fastened to keep the bottom from springing down or breaking through. The floor should be made of ¼-inch oak or ¾-inch pine boards. The bails, *D*, are made of ⅜-inch iron-rod, 7 feet long, bent in middle and put through holes in the top of posts *B*, and turned up a little to keep them in. These bails may be fastened with a heavy iron ring at the top,

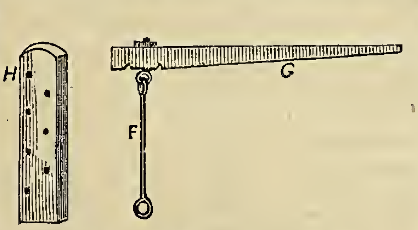



Fig. 2. Fig. 3.—LEVER AND ATTACHMENT.

which serves to hook the beam in and keeps the bails from straggling. A place must be provided to hang the box and means for lifting it, beam and all, after the stock is put in, as it is hardly possible to get hogs or sheep to go into a swinging box. The way we lift ours is by a lever and pins, which works very well; one man can lift 1,000 lbs. with ease by this means. If there is no place more convenient, plant the post *E* near some building, 8 feet above the ground and the same distance from the building, insert the end of the joist *I* into the building, and mortise it upon the post. The joist should be 4 by 6 inches, as a hole for the rod *F* has to be made in it. To make the post *H*, nail a 2½ feet by 6 inch board on each side of the joist *I*, then cut two boards 6 inches shorter, to sit on top of the joist inside the others. Then place a 2 by 2-inch block between the boards and the top, and nail all together. This leaves a 2-inch space in which the lever works. The lever *G* should be made of 2 by 3½-inch oak or hickory, and as long as desired. Then get a ½-inch rod, 2½ feet long, made as shown in figure 2, put it up through a hole in joist *I*, and fasten into the lever with the staple and bur, as shown at figure 3. In the post *H*, 3 inches from the bottom and 1 inch from the edge, bore a ¾-inch hole clear through, then 3 inches higher another, and so on, as shown by dots at figure 3. Get two iron pins to fit these holes easily; then, by raising and lowering the lever by means of the long arm, and moving the pins, the load is raised. Make notches in lever *G* to keep the lever from slipping. A lumber wagon may be so placed that the lever may be worked by a man standing in it, a step-ladder, or some other object, may be used, if found more convenient.

## A Farm Cart.

While there are different kinds of farm carts, we have not yet hit upon *the* cart—*i. e.*, one that meets with general approbation. The writer, having much work for a cart, has designed one which is intended to do all the work of the farm more easily than a wagon or any other cart. For the carriage of manure, of fodder-corn, green clover, or other soiling fodder, for hauling roots and such work, a cart is needed with a low body, that can be turned around in its own length to back, or even turn, in a manure cellar or on a barn floor. All this can be done with this cart, and when hay, straw, or green fodder is to be loaded, the fore and hind racks may be put on, and greatly increase its capacity. With 4-inch wheels, this cart can be drawn, when loaded, over plowed ground or muddy roads, and scarcely sink below the surface. The cart body consists of a frame 8 feet long, 3½ feet wide, and 14 inches deep, thus holding, when heaped, about a cubic yard and a half of manure, or as near as possible one ton. The frame is made of 4 by 3 timber for the top, and 2 by 3 for the bottom, sides, and cross-bars, and is covered with bass-wood or willow boards on the bottom, the front, and the sides near the wheels. The rear end is closed when desired by a sliding tail-board. The axles are fixed to the frame, as shown at figure 1, and pass

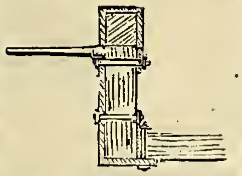


Fig.1. AXLE FASTENING.

through the middle side posts under the upper side bar and a wide iron strap, which embraces the top of the frame, and passes under the bottom, as shown in the engraving, being screwed by bolts to the timbers. The wheel being the same size as an ordinary wagon wheel, viz.: 4 feet; this brings the bottom of the cart body to within one foot of the ground, and in loading, the lift is only a little more than two feet from the ground. The saving of labor and the effect of work are thus greatly increased, a man being able to load twice as much, with the same force, into a cart of this kind, as into a wagon box four feet high. The rear end of the cart may be provided with a roller, fitted into the rear posts, which serves to ease the unloading of the cart when it is tipped, the rear end then easily moving over the ground as the cart is drawn over the field when unloading manure. But as the cart body is so low there will rarely be any need for tipping the cart. To enlarge its capacity, there are

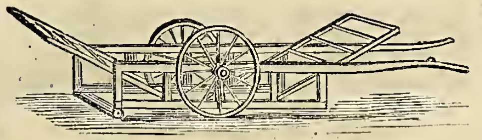


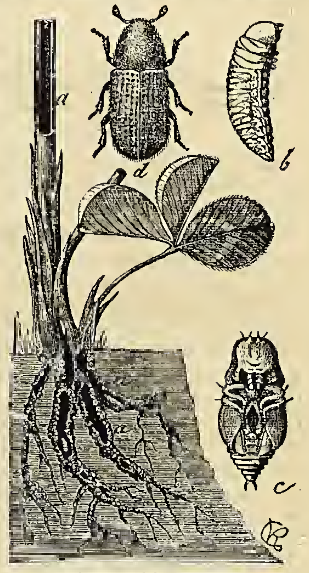
Fig. 2.—THE CART WITH MOVABLE RACKS.

movable racks fitted before and behind, as shown at figure 2. The cost of two of these carts is not more than that of a wagon, and may be less, if economy is exercised in making them. The shafts may be bolted to the sides and so arranged that the cart can be tipped over when the load requires it.

## The Clover-Root Borer—(*Hylesinus trifolii*).

The importance of Professor Riley's work during his brief stay with the U. S. Department of Agriculture, is evident from his Report for the year 1878, so full of valuable information for the farmer. A new enemy to the Clover crop is figured and described by him, and to whom we are indebted for the accompanying engraving. The insect is a small beetle, and does most of its mischief, while in the grub or larva state, by boring into, and eating out, the center of the larger roots of the Clover-plant, though the flower-stalks do not escape when the plants are badly infested. In Central New York the insect was so abundant that the plants were entirely eaten off, and of course the crop proved a failure. The beetle is not new to science, having been known in Europe for many years, where it has been thoroughly studied and described, the accounts of the insect given abroad are confirmed by Professor Riley's recent investigations here.

The insect is shown in the engraving in all three stages, larva (*b*), pupa (*c*), and adult or perfect insect (*d*), all of which can be found upon the Clover at any time during the growing season. "The insect," says Prof. Riley, "hibernates in any of these three stages, and continues propagating as soon as spring opens, the beetles issuing from the ground and pairing during the early spring months. The female then instinctively bores into the crown of the root, eating a pretty large cavity, wherein she deposits from four to six pale, whitish, elliptical eggs." The galleries made by the grub are shown at *a*, *a*, *a*, at the ends of which the larvæ assume the inactive pupa state. It is during the second year of the Clover-crop that the Root-borer is most injurious, and this suggests the only remedy which has as yet been found, namely: plowing under the Clover after the first year, in all localities where the pest is observed. If the insect proves as destructive, generally, as it has in some localities, a total withholding of the Clover-crop for a few years may be found necessary. Professor Riley has observed certain animal parasites which prey upon the *Hylesinus*, and they may in time rid us of this pest.




CLOVER-ROOT BORER.

**Branding Cattle.**—Tanners complain, and with reason, of the damage caused by the reckless use of the branding iron upon Western cattle. Branding may be a necessary cruelty, but that it is a painful operation cannot be doubted, as the branding irons must penetrate to the flesh, to make an indelible mark. But leaving out of the question the humane aspect of the case, and regarding only the practical question of the danger to the hide, it might be suggested that some other spot than the flank or broadside might be chosen as the place for the brand. This is the most valuable part of the hide, and damage there, seriously reduces the value of the leather. The Sandwich Islands furnish a few hides for the American market, and the brand upon these is placed on the leg above the hock. This does not materially injure the hide, and a brand there, will be as plainly seen by a cow-boy at a "round-up," as one on the flank. Perhaps some other method of marking cattle might be invented, that would avoid the necessity for the painful branding. There are seven colors that cannot be mistaken, and it might be a practical innovation to mark cattle with these, as sheep are marked upon the wool, choosing different parts of the body, as

well as different combinations of colors, and shapes of markings, etc., for the cattle of different owners.

## Paddock and Hovel for Horses or Mare and Foal.

Objections are made to sending horses from the city to pasture in the country, on account of the exposure to the weather in the open field. This may be easily avoided by the construction of cheap temporary hovels in the pasture, in which the animals may find shelter, and where a trough may be provided for the regular rations of feed, which should always be furnished. In the majority of cases, it is not the exposure that does the mischief, but the actual want of food; for a horse that has been fed liberally upon grain for months can not consume a sufficient quantity of watery grass to support the system without injury to the digestive organs; and the impossibility of assimilating sufficient nutriment is the leading cause of the loss of condition. But if with the grass a moderate quantity of concentrated food is supplied, healthful nutrition goes on, and the appetite, stimulated by the unwonted freedom and exercise, is healthfully satisfied. Nevertheless, the coat softened and weakened by constant blanketing, and the warm air of a city stable, can not resist exposure to the sun's scorching heat and the chilly nights which rapidly alternate, and shelter is absolutely necessary. A hovel may be constructed of poles and brush from the woods, or of rough boards. A ground floor 10 feet by 12 is sufficient. If small poles and brush, or coarse grass, are used, the poles may be set up loosely in the ground in the form given at figure 1, in double rows, leaving a door space on the south side. The rows are 6 inches apart, and the space between them is filled with fine brush and small branches for a foot in depth. The opposite poles are tied together here and there with tarred twine, and the brush is beaten down solidly, after which another layer of a foot of brush is laid between the poles and treated as before; in this way the walls are finished up to a safe height, 8 feet being the least, so as to avoid danger of the horse striking the head as he goes in or out. The

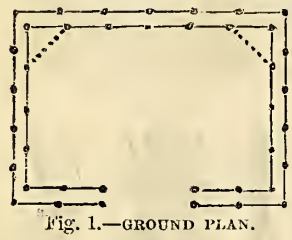


Fig. 1.—GROUND PLAN.

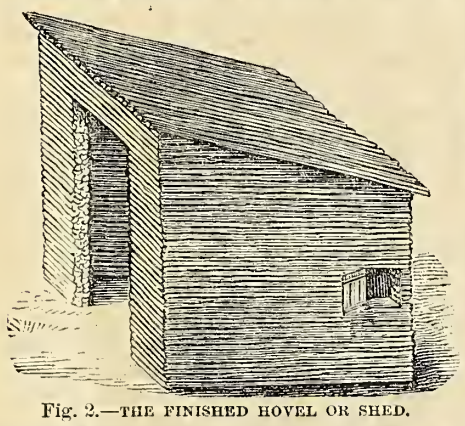


Fig. 2.—THE FINISHED HOVEL OR SHED.

sides of the doorway are carefully smoothed off, only the fine tips of the brush being placed there to avoid any dangerous projections. A feed trough may be placed in each corner, and one hovel may serve for two horses or a mare and foal. The roof should be rain-proof, and if thatched with brush and straw, or hay, the pitch should be considerable. Small openings are made above the boxes for the feed, as shown at figure 2, in which a completed hovel is represented. For brood mares and foals running in pasture, such a hovel will be found very useful, and for valuable calves also which require shelter when running in fields. A few of these hovels will be found useful upon nearly every farm.

**Effects of Dew Upon Pastures.**—The heavy dews which are usual in late summer and early fall, and the light hoar frosts which occur as the cooler weather arrives, are unwholesome to cattle and sheep. It may be that the well known effect of dew in this direction gave rise to the old fashioned idea that dew was in itself injurious, and caused various diseases. There is nothing in the character of the dew itself which is hurtful, but it is the filling of the stomach with wet herbage that is unwholesome. The stomach becomes distended with the products of the decomposition of the wet mass, and in time the animals suffer. Danger may be avoided by keeping the stock, especially young animals, from the grass until the dew has dried off. The danger is not so serious until the shorter days and longer nights of the fall cause an excessive deposition of dew, when care should be exercised.

## Fire-Proof Farm Buildings.

Farm buildings are so seldom destroyed by fire that they can be insured for a rate of 25 cents per $100 a year on a three years' policy, yet they are sometimes burned and heavy losses are incurred. Safety is not only a very valuable but a very comfortable condition, and it is worth a good deal to feel, as well as to be, safe. A wooden building is a constant risk, and is subject to danger not only from within but from without. An iron building is one of the safest, it being equal in this respect to a brick building with a slate roof; while it is much cheaper and more easily constructed. Counting the low cost of erecting a building with iron walls and roof, although the iron costs about twice as much as boards, the saving of time and labor will bring the total expense nearly equal, and counting the great saving in the cost of the roof it is doubtful if the iron covering is not altogether cheaper

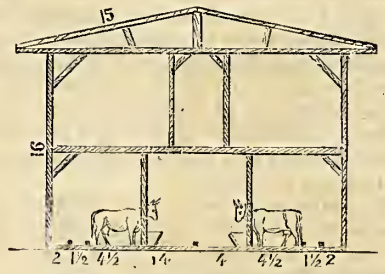



Fig. 1.—PLAN OF STABLE.

than board walls and shingles. For instance, a cow-stable, and hay and fodder shed above, built on the plan shown in figure 1, 16 feet high to the eaves, and 24 feet wide, would cost for covering $3.41 for each foot in length, leaving the cost of the frame to be estimated. This might amount to $1 per foot for material, and the framing might cost $1 per foot additional. As the iron covering is made in large sheets 8 feet long by 28 inches wide, it is rapidly put on, and as any man can apply it the owner himself could work at it and save the cost of a carpenter. A barn 100 feet long, 24 feet wide, and 16 feet high, would therefore cost, complete, with windows and doors, not over $600, and the outer covering would be wind, water, and fire-proof, and already painted inside and out. There can, therefore, be no cheaper building material than this, and as it is indestructible and can not rot, if properly cared for, it would seem to be cheaper than any other material whatever. The iron sheathing is made either plain or corrugated. A kind that has been recently introduced for roofing or siding, that is made in sheets 96 by 28 inches, has lapped edges, as shown in figure 2, which re-

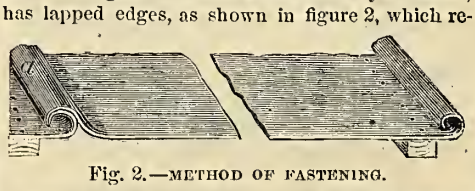


Fig. 2.—METHOD OF FASTENING.

presents a section of a sheet. In fastening these to a wall or roof, one curved edge is inserted in the other, as shown at *a*, figure 2. The first sheet is nailed to the studs, as shown in the engraving, and the next sheet is hooked to it. After the sheets are fastened the joints are flattened out with a mallet and made water-tight, and practically air-tight, as no wind can penetrate at the joints. A building thus covered is much warmer than a wooden one in the winter, and besides, is more quickly warmed

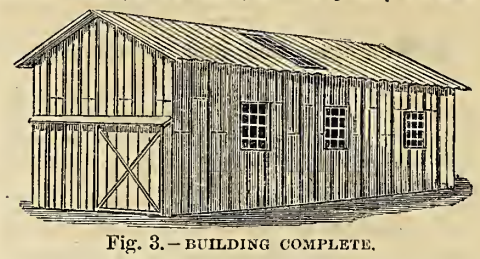


Fig. 3.—BUILDING COMPLETE.

by the sun's rays than a wooden one can be. The style of building constructed of this material is shown in figure 3, which represents the corrugated siding and roofing; this, however, is more costly than the flat siding, and the joints can not be made so tight. The weight of this iron building material is less than that of lumber one inch thick, being only 90 lbs. to the 100 feet, hence a much lighter frame may be used, as the roof not only requires no sheathing or roof lath, but the covering is less than one-third the weight of boards. On the whole, this seems to be a very desirable material for cow or horse stables, hay sheds, pig-pens, hay barracks, poultry houses, and even barns. It is certain that much money is wasted in building the present style of high barns with heavy timbers, and when ground space is cheap a low, light building is equally convenient in use, and costs much less to build it.

## Poultry Farming.

No other business connected with agricultural pursuits, seems so attractive as poultry farming. Even those who fail in the business, and retire from it, aver that they are certain they could succeed in a new trial; their mistakes having taught them how to succeed in future. This may be true, but it is noteworthy that they do not try again. Still we have almost daily inquiries, especially from young men, as to the possibility of making a living from poultry; to all of which we are forced to give unsatisfactory replies. The profit in poultry lies in keeping small flocks. From such it is easy to make an income of $1 from each hen annually, even after buying food. But no account must be taken of the waste and damage done to crops, nor of the value of the free foraging done by the fowls; and these amount to a considerable sum if figured up closely. Then accidents are to be taken account of. For instance: the writer once kept a flock of 30 Light Brahma hens, which did well for three years, and paid excellently; but the unfortunate introduction of a cockerel from a distant yard brought a prevalent disease, of which every bird died, leaving one brood of motherless chicks the sole survivors. This may be taken as an example of the uncertainties of the business, which are increased in proportion as the flock is larger. A flock may be kept as an adjunct to a more important business, and to take up spare time, and in that case, barring accident, may be made profitable. But it may be taken as a certainty that not more than one person in a hundred who have tried it, has ever succeeded in keeping a flock of several hundred fowls in profitable condition. If one thinks he is born to succeed, let him try; he may possibly become a shining example to show others the way to success.

**Packing Butter for Winter.**—There are a few requisites for packing butter safely for winter use. The butter must be good; the salt must be pure; the packages must be clean and air-tight, and perfectly well closed; and the place of storage must be cool, clean, airy, free from mouldiness and not too dry. A clean, well-aired cellar with cemented floor, and in which vegetables are not stored, is as good a place as any for the storage of butter for winter use. Pure air is very important.

**Cross between Jersey and Angus.**—A remarkably good-looking young cow was exhibited at the recent N. J. State Fair at Waverley. It was a cross between a Polled Galloway bull, and a Jersey cow, and in color was jet black, with a few

white patches. The coat was glossy, fine and short; the head was hornless, fine, and had the Jersey features; the milking qualities, so far as could be ascertained by the appearance of the cow, promised to be good, and on the whole, the neat, small figure of the animal, nearly approaching to a well-bred Britanny cow, was prepossessing and attractive. It is doubtless a desirable cross, and it would be interesting if some one having the opportunity of making it, would test it to a certain issue. A polled cow is highly desirable for the dairy, and a polled race, with all the good points of the Jerseys, and the Galloways combined, would be a valuable acquisition.

## An Experiment With Canada Ashes.

The use of leached ashes, brought mainly from Canada, is largely increasing upon our shore farms. They are shipped from Oswego and other lake ports, in canal boats, brought down through the canals and the Hudson River, and towed to the ports on Long Island and in Connecticut, where they are sold to farmers, who carry the ashes in their own teams to the fields where they are to be used. These ashes are not very thoroughly leached, and contain a considerable quantity of potash, as well as other kinds of plant food. They have long been used to great advantage in the onion growing districts, and more recently their use has extended to all farm crops. Last year, William R. Fish, of Mystic Bridge, purchased about 1,500 bushels, and used them upon his farm. They were put upon his grass lands and upon other crops, with very satisfactory results. They were spread upon his meadows, at the rate of 100 bushels to the acre. The cost of the ashes was seventeen cents a bushel, making seventeen dollars an acre for the manure. The increased yield of hay was at least one ton to the acre, doubling his crop wherever the ashes were used. He thinks the increase in the hay will pay one half the cost of the fertilizer the first season. It is well known that the effect of ashes is visible for a long time upon grass lands, some say for twelve or fourteen years. Meadows can be kept much longer in grass where the ashes are used as a top dressing. The ashes were also applied to corn and potato crops, with equally satisfactory results. The best evidence of the value of this fertilizer, is the fact that the farmers who use them are making larger investments in them every year. They are most economically applied to farms near sea ports and river landings, where they can be taken directly from the canal boat. They are not a concentrated manure, and cannot be carried long distances by rail with profit. CONNECTICUT.

## Well Boring Tools, and How to Use Them.

In many localities flowing wells may be procured by boring to a moderate depth. A flowing well is worth a large sum of money, merely estimating its value by the labor it saves in drawing the water, and distributing it to stock. To consider that $50 may be thus yearly saved, is not too high an estimate. This represents a sum of $1000, with interest at 5 per cent, and $500 at 10 per cent. A complete set of tools can be procured for less than the latter sum, with which a well can be bored 250 feet deep, and the tools will be still on hand, for sinking other wells in different places on the farm, or for neighbors, by which a large profit can be made; the economy in this is very obvious. Flowing or Artesian wells—a true Artesian well is not simply a deep well, but a flowing one—can generally be procured in low ground, between low hills underlaid with clay, which rests upon rock or gravel. The water sinking in the soil upon the high ground, finds its way under the clay upon the rock, and through the gravel, and escapes in the lower ground in springs. Where springs abound, one can almost certainly procure a well in which the water will rise and flow over the top, so that it may be led in pipes into yards or buildings. Where such wells are not likely to be found, as in regions underlaid with sand or gravel, it is still an advantage to have a deep well, on account of the permanent supply, and the purity of the water; especially as there is no lack of pumps of the best character, made expressly to raise water from great depths with much ease, and force it wherever it may be required. Deep wells are made by boring instruments or augers, which cut out the soil, and hold it while it is drawn up, and disposed of. At figs. 1 and 2 is shown an auger for boring in clay, with front and side views. The edge is of steel, sharp and chisel-shaped, and so bevelled, that as it is turned it cuts down into the clay, and takes out a piece the shape of the pod of the auger. When this is filled, which needs eight full turns, it is drawn up by means of a windlass, and the contents discharged. At figure 3 is shown the auger used where the ground is filled with loose stones. The augers are usually from 6 to 30 inches in diameter, the deep wells being 6 or 8 inches, and the shallower ones 24 to 30 inches in diameter. Forty or fifty feet in depth can thus be bored in a day, where boulders are not met with. The larger wells are protected by wooden curbs, fig. 4, made of boards, or by cement tiles, which are settled down as the boring goes on below them, and which are a little larger than the auger, so that it can work inside of them. The augers are fitted to a square iron rod by sockets and keys, and the rod is turned by means of heavy wrenches with long handles, turned either by two men or one horse, or by horse-power machines, with suitable gearing. A three-legged derrick with a geared wheel and axle, is provided for hoisting up the filled augers, and letting them down into the well again. In this way the boring goes on through water or quicksand, or any other material, until a sufficient depth is reached.

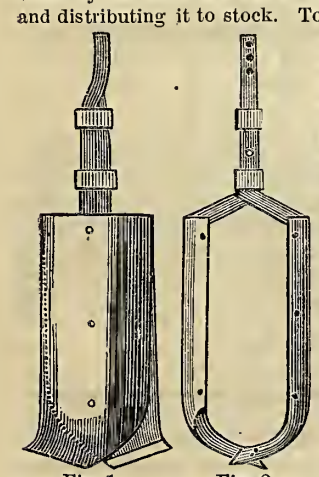


Fig. 1.


Fig. 2.

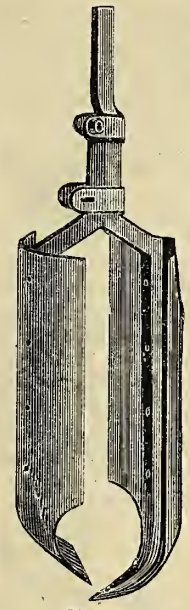


Fig. 3.

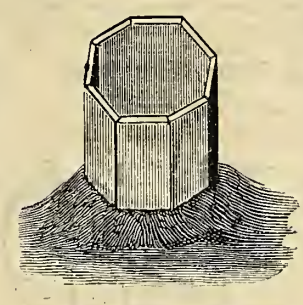


Fig. 4.—WOODEN WELL CURB.

Fig. 5.

The narrow wells are usually protected by pipes of sheet iron, figure 5; or in case the pipe needs to be driven down, a strong wrought iron lap-welded pipe with flush screw joints, figure 10, is used. This latter pipe is required for deep or flowing wells, when there is much pressure of water.

When rock is met with, a different method is required. Soft rock can be bored with steel-pointed augers made for the purpose, but drills are commonly used in all kinds of rock. Drills are of different shapes. The wedge-bit, with a curved edge (fig. 6), is most frequently used, when the rock is hard; in softer rock the Z shaped bit (fig. 7) is used, which cuts more quickly. In rock of unequal hardness, or in soft rock, with inexperienced persons, the holes will run to one side or another, or become oval instead of round; in these cases a reamer, figure 8, is used to trim and straighten the hole, so that the drills may be able to work, as a straight drill can not work in a crooked hole. The drill is screwed by means of a powerful wrench into the drilling-bar, which is a square or round bar of iron, or wrought iron gas-pipe, 1¼-inch in diameter, and the top of the bar is furnished with an eye and ring by which the hoisting rope is fastened to it (fig. 9). The drill is not twisted, but is jumped, that is, raised and let fall several feet, and is turned a quarter round at each fall, so as to cut the rock out in pieces at each blow. A hand-machine for raising and dropping the drill is shown at figure 12, and a power machine for horses or steam-engine at figure 13. From 40 to 60 strokes a minute are made, and the drill is able to cut a 6-inch hole from 6 to 15 feet a day, according to the hardness of the rock. The chippings of the rock are made into mud by pouring water into the hole while the drill is at work, as the drill works more easily and the borings are more readily removed. A sand pump is used to remove the waste. This is an iron tube, provided with a valve at the bottom, figure 11. It is let down into the hole, and is churned up and down for a short time, so as to stir up the mud, and is then raised; the mud and fragments of rock remaining in the tube. So the work proceeds, a few feet at a time, until a sufficient supply of water is reached, when the well is tubed by screwing sections of the tube together and putting them down to the rock through the clay or earth, if this has not been previously done, driving them down to make a close joint with the rock, and fitting the surface pipes to the upper length of tube. It is in this way that all the oil wells from which our supply of petroleum is gathered, and all the deep, or shallow, Artesian wells that are now in use, have been bored, although the process is now much

Fig. 6.

Fig. 7.

Fig. 8.

Fig. 9.

Fig. 10.

Fig. 11.

facilitated by the use of the best machinery. It is not to be supposed that the work is always done as easily as it can be described. The tools sometimes break, and portions of the drills remain in the well;

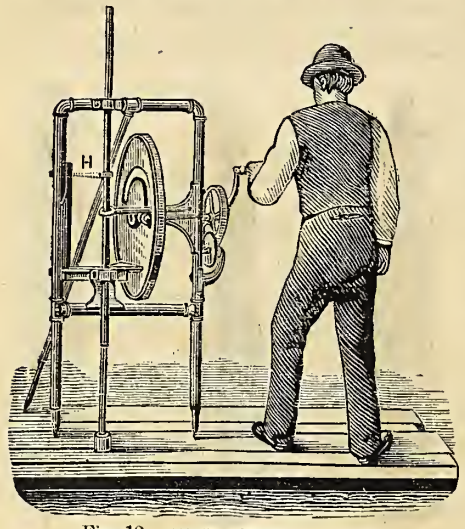



Fig. 12.—HAND-POWER MACHINE.

but the perfection of well-sinking machinery is such that iron or steel fingers can be sent down and made to pick up the fallen obstacles, or hard steel drills are used to cut them in pieces, so that they can be brought up in the sand pump; besides, the cost of sinking is largely reduced by means of the excellent tools which are at present in use.

## Cultivated Wheat.

BY A. B. TRAVIS, BRANDON, MICH.

Twenty-nine years ago the present autumn, I broke up a gravelly field, and cropped it in my usual way to wheat, corn, and oats, or barley, and then seeded to Clover and Timothy, and mowed and pastured it two years, and then with the same rotation to the last five years in which I took off two crops of wheat; one of them was stubbled in wheat after wheat and seeded to Clover and Timothy, which gave two crops of hay. When the last crop of hay of 1878 was taken off, I plowed the land in the last days of August, planted on the 16th of September, and hoed it with my Horse Hoe once in the fall and twice in the spring. I used a 7-inch space drill, closing up each alternate hoe, making 14-inch space on part, and the rest was put in belts by twisting the drag bars of the drill to bring the points of two hoes near together, and giving more room for spreading of seed, leaving 10 to 11 inches in space for cultivation. I prefer this belting, and

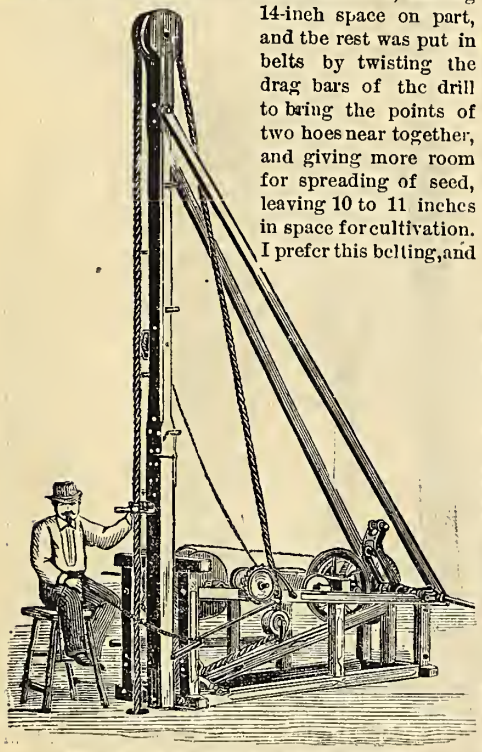


Fig. 13.—MACHINE FOR STEAM-POWER.

would like about 12 inches for the hoe. I tried different quantities of seed, from two to six pecks per acre, and found that three or four pecks was the best. I had three to six pecks of seed per acre standing side by side with equal chances, and the three pecks was fully 50 per cent better than where the six pecks were used. Too much seed weakens the crop, and if insects attack it there is not strength to support the insects, and the wheat must perish or drop down before harvest, while the thin sowing, having more space and strength by hoeing, branched out more, and the branches that come out after the insect was done working are healthy. How easy it would be for farmers knowing the benefit of boeing their wheat and oats, when they are planting seed in the fall and spring, to close each alternate drill on about one or two acres if no more, and hoe a part with a hand hoe, and watch the results in the heads next harvest; but almost all have been brought up in the old fashion, believing that nothing needs cultivation unless it stands in the garden or corn field.—[Mr. Travis sent with the article a sheaf of wheat grown on the field referred to; it has fine straw and extra good grain, many of the heads containing over 60 seeds. It is an encouraging symptom of enterprise on the part of farmers, who are apt to be charged undeservedly with being too slow to adopt improved methods, that very numerous experiments are being made in cultivating wheat. The reasonableness of the practice, and its constant use with other crops, are inducements for its adoption in wheat culture, and wherever it has been tested it has resulted in a large increase of the yield. We confidently expect that before long every field of wheat will be hoed as corn and potatoes are, and every facility given to the crop to do its best in production. The average yield of wheat should be at least twice as much as it is now, and the only way in which the increase can be made is by the use of improved methods of culture, among which hoeing is found to be one of the simplest and most effective.—ED.]

## Fastening Cattle With Bows.

Everything connected with this method of fastening cattle in the stables, by means of Bows, is so

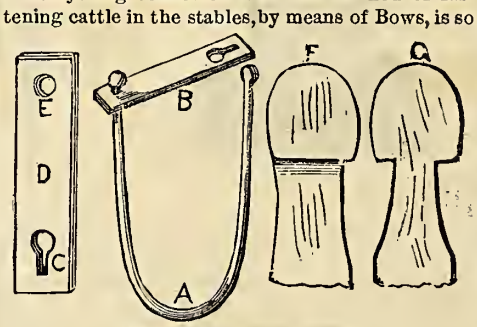



Fig. 1.—BOW AND CLASP.

simple in construction, that it is within the reach of every farmer. It requires no outlay, as each one can make all the parts for himself. The bow (fig. 1) passes around the animal's neck in the same manner as an ox-bow, and is made of a good piece of hickory, by bending a strip of the right length, and ¾-inch in diameter, into the bow form. After the bow-piece, *A*, is made of the right size and shape, with one end left with a knob, to prevent the clasp from slipping off, and the other cut as shown in front view in fig. 1, *G*, and side view at *F*, to fit into the slot, in the clasp, it is carefully bent until its ends are brought together, fastened, and left so for a considerable time, when it will take its form, and be ready for use. The clasp is shown at *B*, *D*, and consists of a piece of hardwood—hickory is best—¾-inch in thickness, and long enough to hold the top of the bow well together. A round hole is bored in one end, *E*, through which the bow passes as far as the knob; the other end is cut with a hole for the passage of the other end of the bow, and a slot, *C*, into which its narrow neck springs when the bow is secured about the creature's neck. A smooth, stout hickory pole, 2½ inches in diameter, reaching from the floor to the beam overhead, serves as a stanchion to which to attach the animal, by means of a small bow, and stationary clasp, figure 2, or an iron ring, *A*. If a little more room is desired for young stock, a link or two of chain, *B*, can be inserted between the bow and stanchion ring. In fastening the cattle, the bow is raised when it passes around the neck, and the clasp is brought on, and the end of the bow is sprung in place. When the animal is to be let loose, the end of the bow is pressed in, the clasp slips off, the bow falls, and the work is done in less time than it takes to describe it, and everything is

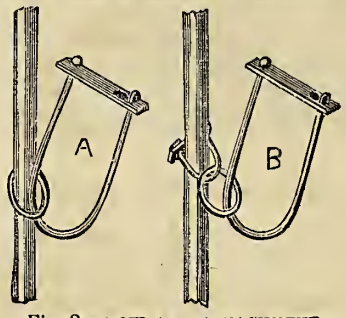



Fig. 2.—BOW AND ATTACHMENT.

out of the way. Figure 3 shows a stable arranged for this method of fastening; aside from the manger, there is but the stanchion poles, one for each animal. There is sufficient freedom of movement of the head, but not an excess; the animal can stand or lie down with perfect comfort, as the bow moves with ease the whole length of the stanchion. After a week's practice, the animals will take their place with their heads by the side of the stanchion, as shown in the figure, with a precision that is remarkable. Having used the method here illustrated for several years, the writer has found the method to be inexpensive, easy in application, and safe.

**The Preservation of Wood.**—It is known that the decay of timber first begins through the fermentation of sap within the pores, and that it is continued after this by the absorption of water. The neutralization of the acids in the timber by the use of lime, has been made use of to preserve it from decay with success; but the most effective methods have been to saturate the pores with oils or mineral salts. Creosote and Petroleum have been used successfully, but few persons are aware of the enormous absorptive capacity of timber for these liquids. Cypress wood, when dry, will absorb 39 lbs. or 5 gallons of oil per cubic foot, and California Redwood and Pine, absorb twice their weight when perfectly dry. But it is not necessary for perfect preservation that timber should be fully saturated, one gallon per cubic foot, for the most porous woods will be fully effective, and a coating of one and three-quarters of a pint per square foot for weather boards, or half as much for shingles, will render them perfectly water proof. In some careful experiments recently made, dry Spruce absorbed, during 2 days soaking, uearly 2 per cent of its weight of water, and but one-tenth as much when treated with oil; dry Pine absorbed 16 per cent of its weight, and oiled Pine absorbed none that could

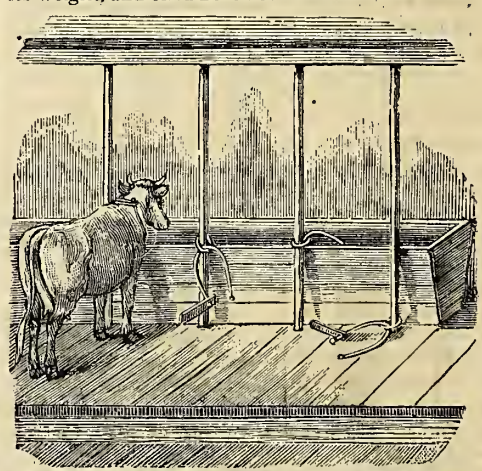


Fig. 3.—STABLE SHOWING BOW AND STANCHIONS.

be ascertained by careful weighing. Pine has proved to be the most easily water-proofed of any timber. Those who wish to preserve shingle roofs, will be able to draw their own inferences as to the usefulness of coating them with crude petroleum.

## The Canada Tick-Trefoil.
(*Desmodium Canadense.*)

The genus *Desmodium*, belonging to the Pulse or Pea Family, the *Leguminosæ*, is a rather large one, as it presents us with about 20 species in the North ern States. They are perennial herbs, with compound leaves of three leaflets, small pea-shaped flowers, and flattened pods, which are lobed on the lower edge, and when ripe break up into two or several joints. The generic name, *Desmodium*, comes from the Greek, meaning *bound together*, having reference to the connected joints of the pods. The pods are generally clothed with very small hooked hairs, and when ripe break up at a slight touch into joints, which, by means of the hairs, cling very closely to the clothing, and in autumn one can rarely ramble far without finding evidence that he has been in contact with one of the species in the joints that persist in clinging firmly to his clothing. The trefoil-like leaves and the tick-like clinging of the joints of the pods, give the common name "Tick-Trefoil." They are also sometimes called "Beggars' Lice" and "Beggars' Ticks," names which properly belong to very different plants, but which have a similar provision for distributing their seeds. In most species of *Desmodium* the flowers are small and inconspicuous, but in *D. Canadense* the flowers are much larger than in any others, being half an inch long, and from their greater abundance in dense panicles or clusters, and their lively purplish-pink color, are quite showy. In the engraving the panicle and the flowers are reduced about one-half, the real size being shown by a detached single flower. The stems are usually about three feet, but are sometimes twice as high. Pennsylvania is its southern limit, and it is more abundant northward, along the edges of woods, flowering in August and September. This is among the many of our native plants that, when introduced into the garden, will compare favorably with the exotics of the season. It is another illustration of the fact that we have for these many years endeavored to impress upon our readers—*i. e.*, that no lover of flowers need be without a flower garden because of the expense of plants to stock it. From early spring until the end of the blooming season, are to be found wild plants which European cultivators are glad to have in their gardens, and for which they pay as much as we do for European and other choice exotic plants.

THE CANADA TICK-TREFOIL (*Desmodium Canadense*).

## The Great Scarlet Rose-Mallow.
(*Hibiscus coccineus.*)

The genus *Hibiscus* includes both shrubs and herbs, and furnishes a number of showy cultivated species; they have usually very large flowers, of the general structure common to the Mallow Family, the most prominent character of which is the union of the stamens (by the filaments) into a long tube, through which the pistils protrude; this structure is very distinctly seen in the single Hollyhock, and runs with slight modifications through the whole Family. Among the shrubby species of *Hibiscus* is *H. Syriacus*, or "Rose of Sharon" (incorrectly called *Althæa*, which is a distinct genus), a hardy shrub, cultivated for its large late flowers, which range from white to purple, and are both single and double. A valued greenhouse shrub is *H. Rosa-Sinensis*, the "Rose of China," with shining leaves and large scarlet or crimson single and double flowers. Among the annuals, *H. esculentus*, the "Okra," with eatable pods, and *H. Trionum*, the "Flower of an Hour," are well known. Of the perennial herbaceous species, the most showy are natives of the United States. *H. Moscheutos*, the "Swamp Rose-Mallow," is common in the brackish marshes from Canada southward, others are found along the rivers of the West and Southwest, some are peculiarly Southern, and two are found in California. Of these all but a few peculiar to the southernmost States are hardy in the climate of New York City, and while occasionally seen in gardens, are not so generally planted as they should be, where there is room for such stately plants; they are from three to six or more feet high, often with striking foliage, and very large and showy flowers. One species, having Georgia for its northern limit, is not quite hardy with us; this is *Hibiscus coccineus*, the "Great Scarlet Rose-Mallow," of which we give a flower, leaves, and unripe pods, reduced in size. The stem, which is very smooth, grows four to eight feet high, its long-petioled leaves are deeply cleft, as seen in the engraving; the flowers are from 6 to 10 inches across, of a deep scarlet, and especially brilliant from the shining surface of the petals. This, so far as we are aware, is the most showy of all the herbaceous species of *Hibiscus*, and one of the most brilliant of flowers of its season, which, with us, is early in September, but in its native localities it begins to bloom in July. We say that it is not hardy with us from the experience of last winter only. But the fact that it is not hardy should be no obstacle to the cultivation of so showy a plant, as its roots may be taken up after the stems are killed, and kept in dry sand or earth in the cellar. In European works this species is given as *Hibiscus speciosus*, but the one given above is the older and, therefore, proper name. In view of the readiness with which plants of the Mallow Family break into varieties, we are surprised that so little has been done with our native species. The exotic species of *Hibiscus* already mentioned have given a great variety of color and double and half double flowers. The Great Scarlet Rose-Mallow is a promising subject to work with.

THE GREAT SCARLET ROSE-MALLOW (*Hibiscus coccineus*).

## The Apple-Leaf Fungus.

(*Rœstelia cancellata.*)

Observing upon a neighbor's apple tree, leaves that were turning crimson in spots, we picked some for examination. Our friend, noticing the spots, remarked that he supposed "there would be swarms of insects coming out of those blotches before long." Such deformities of plants are no doubt generally ascribed to insects, and very naturally, as in many cases, the abnormal growths, such as the various galls, oak-apples, etc., are, but not always, due to them. There seem to be three general classes of diseases, or troubles, among plants: (1) Those caused by insects, and therefore of animal origin. (2) Those which arise from vegetable parasites, the most common ones being members of the fungus group, and (3) a class, which so far as we know, due to neither of these two. A class of

Fig. 1.—APPLE-LEAF WITH FUNGUS.

true diseases, where the plants are "out of health"—a *real sickness*, brought about by one or more of a multitude of different and often unknown causes. The apple leaves, one of which is shown in figure 1, are doubtless infested by a fungus, which has been known for a long time, though it is not fully understood even now. Those who read the account of the Wheat Rust in the August number (page 301) will remember that there were several stages in the life of the Rust Plant, in one of which it was on the Barberry. The fungus on the apple leaf belongs to the same group, and is the "cluster-cup" form of the species, resembling, as a comparison of the figures will show, the "Barberry state" of the wheat rust. The cup is deeper, the neck extends much further above the surface of the leaf, and is more finely fringed about the edges, but in a general way a description of the one will answer for both. Figure 2 shows an enlarged view of the "fringed cluster-cup," as it is sometimes called, and a cross-section through a cluster is given in figure 4, where two of the cups, which are more like tubes, are seen. In these pits the orange-colored spores are produced in vast numbers, closely packed together in the bottom, figure 5. If these cluster-cups upon the apple are but a form, or a single stage of some fungus, the question naturally arises: on what plant (or plants) does the other form (or do the other forms) appear? This question has been an interesting and difficult one for students of these subjects; but it is generally considered that the Cedar Apples of the Red Cedar—those bright, orange masses (fig. 3) which appear in spring after a shower or during a long rain, and are sometimes taken for the flowers of the Cedar, and sometimes eaten by children as the fruit—are caused by the same fungus, this being the last stages of the species. Not long ago we saw an apple tree that was growing with its limbs interlocking with those of a Cedar, and on those limbs the fungus was unusually abundant; in fact, the leaves were so covered that there was scarcely room for another cup, while the other trees of the orchard had only the ordinary amount. The Cedar tree was also more infested with the "apples" than others in the woods near by. A knowledge of this connection between these two fungi is important, and teaches that, by destroying the Cedar fungus, that upon the apple may be eradicated. Just how much damage is done by the *Rœstelia* is not easy to estimate, but at any rate its presence in the orchard can be of no benefit. Two practical methods of destroying the pest are suggested. In the spring gather and burn all the Cedar Apples—if it is thought best to keep the Cedar trees; and in the autumn rake together and burn all the apple leaves.

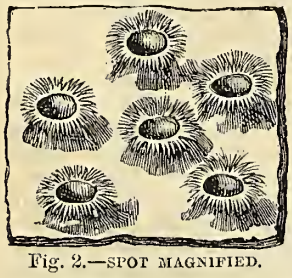


Fig. 2.—SPOT MAGNIFIED.

## Unprofitable Fruit Trees.

A remarkable collection of fruit came to us not long ago; a box contained rusty and cracked pears, apples thickly speckled with bitter rot, and half grown peaches, which had dried up instead of ripening. Very likely the sender had the idea that we could tell him what to do with his *trees*, while the trouble lies deeper. An outbreak of typhoid fever no more surely indicates unhealthy surroundings, than does fruit like this show the condition of the soil. No manuring, pruning, or other treatment of the trees will help them. The only remedy is to drain the soil, and that thoroughly.

We have in mind a striking case of this kind; an orchard in which two-thirds is on dry soil, while the remainder is a little low and wet. Six years ago, the trees upon the dry portion were all in a thrifty condition, of fine shape, and bearing abundantly. But those upon the wet land were but a trifle larger than when set out twelve years before; in fact, most of them were gone. The next year the wet portion was thoroughly tile-drained, and new trees were set in place of the old ones. Now those trees are doing as well as could be desired. No cultivating, growing hoed crops, manuring, or pruning, could have made that wet part of the orchard a success. It simply and only needed draining; and when the owner was wise enough to do that, be made fruit growing possible in that portion of the land, which he had devoted to fruit trees, but from which he had received no returns. There is no greater mistake than to devote to an orchard, land that is too wet for the ordinary crops of the farm, for trees least of all can flourish on it. It would be far better to cut down trees that produce fruit of the kind referred to; they would then be of some use as fire wood, while now they produce an annual crop of disappointment. But the trees in all probability may, if not too old and stunted, be restored by draining the soil. This is a most favorable season for doing the work—Do it!

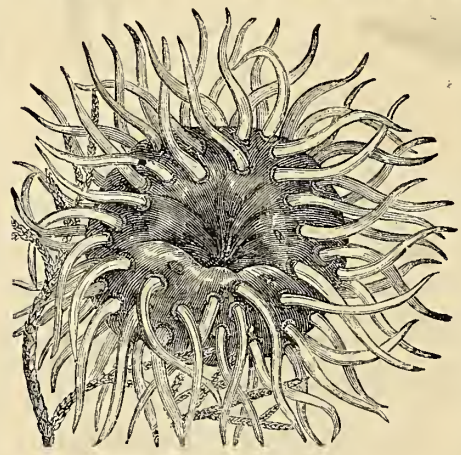


Fig. 3.—A CEDAR APPLE.

**Ivy for the House.**—When Ivy for home decoration is taken up from the open ground, unless the plants have been prepared beforehand, the branches, in running along on the ground, will have pushed out roots at every joint, and when taken up, the plant is deprived of several feeders. If such a plant is placed in a warm room, the evaporation from its leaves goes on as before, while its supply of moisture is greatly diminished, and, as a consequence, the leaves fall off. Plants of this kind should be kept in a room without a fire, until they can make new roots at the base, and accustom themselves to the loss of those along the stems. When Ivy is set out in spring, its stems should be kept tied up; if allowed to rest upon the soil, they will take root wherever they touch.

## Some New White Grapes.

Every grape grower and fruit dealer knows that a white grape will sell more readily, and bring a higher price, than a dark colored or black one. Whether it is because white grapes are *albinos*, and like albinism in animals, this peculiarity is often accompanied by other defects, white grapes soon disappear, very few of them fulfilling their early promise. Every one who grows fruit for market would gladly welcome a white grape with all the good qualities of the Concord, and as few of its defects as possible. After all, the chief excellence of

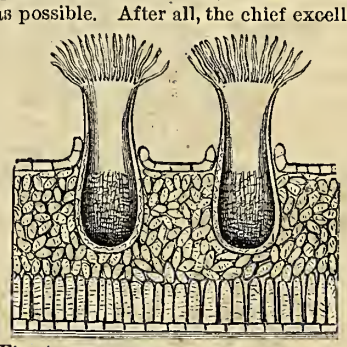


Fig. 4.—CROSS-SECTION OF TWO CUPS.

the Concord is its certainty. Tested by a not very high standard of *quality*, the Concord is not a good grape; but whoever has Concord vines is very sure to have Concord grapes. Some 15 years ago there was a "grape fever," and there was a more general interest in grape culture than there has been since. We then advised the culture of the Concord for this very quality of certainty, and much abuse did we get, as we were encouraging an uneducated taste. We admitted a preference for the second best with certainty over the "first best" with uncertainty of fruit, or rather the certainty of having no fruit. Where now are the varieties advocated by those who placed their standard of quality so high? The trail of grape culture is strewed with their wrecks. But this is a digression. Grape growers still need a grape which will be among white varieties what Concord is among the dark ones, and we think that it is nearer at hand than at any former time. Leaving out others, we confine these notes to those which we for the first time saw at the recent meeting of the American Pomological Society. That we may not appear to show preference for either, we mention them alphabetically:

DUCHESS.—This is raised by A. Caywood & Son, Marlborough, N. Y. If we recollect aright, it results from the crossing of a White Concord seedling with the Walter. It is a large, handsomely shaped and well-shouldered bunch of medium-sized berries, which cling to the stalk with great tenacity. The skin is thin, the flesh very tender, and in flavor it will rank with any of the very best grapes. Its keeping and carrying qualities we assume are, and they appear to be, excellent.

NIAGARA.—Originated with Hoag and Clark, Lockport, N. Y., who state it to be a cross between the Concord and Cassady. Bunch and berry about the size of those of Concord, but more compact. The light-greenish color is sometimes bronzed in the sun. Ripens with the Hartford Prolific, and its quality is very satisfactory. The fruit remains a long time on the vine, and keeps and carries well. Those who have tested the Niagara speak in high terms of the vigor and productiveness, and especially of its foliage.

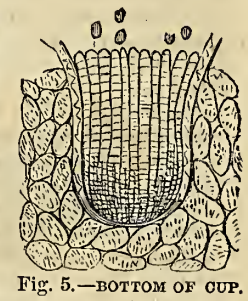


Fig. 5.—BOTTOM OF CUP.

NOAH.—Originated with Mr. Wasserzicher, and,

if we mistake not a seedling, is a seedling of the Taylor. It was exhibited by Messrs. Bush & Son & Meissner, of Bushberg, Mo. It is much larger than the parent, and makes a very good cluster. The Noah is a good table grape, and is regarded by Mr. Husmann and other experienced judges as of great promise for making a white wine.

POCKLINGTON.—A seedling of Concord, raised by Mr. J. Pocklingtou, Sandy Hill, N. Y. A very large berry in a compact bunch. As exhibited, the fruit from an unfavorable locality was not fully ripe; the fruit ripens with Concord, that from vines in more favorable soil being all gone. As seen at the Exhibition it did not do itself justice. John Charlton, Rochester, who grows it, has since sent us specimens. These have lain now nearly two weeks, and have improved greatly. The berry is a light-green, with abundant bloom; skin very tough; flesh of much better quality than Concord, intensely sweet, and less of the *Labrusca* quality in the taste than in the smell. The berry adheres well to the stalk, and has every appearance of being a good keeper. The great size and copious bloom makes this grape most attractive to the eye.

PRENTISS.—A seedling of Isabella, by J. W. Prentiss, Pultney, N. Y., on Crooked Lake, the famed grape locality of Steuben Co. T. S. Hubbard, of Fredonia, who now has the grape, exhibited a section of vine which indicated wonderful productiveness; the vine and foliage are described as most vigorous, except that the vine is disposed to overbear. The berry is larger than the parent, yellowish-green, sometimes with a rosy tint to the sun; quality similar to Rebecca; ripens with the Concord; keeps until New Years, and carries well.

This is certainly a remarkable collection of new grapes, and we shall be much mistaken if more than one does not meet the demand for a white grape that will be as reliable as the Concord. Some white and other light-colored seedlings by Mr. Jacob Rummell, of Mo., were exhibited, but in rather poor condition, and are noticed elsewhere.

## A Portable Package for Fruit.

The usual crate in which peaches, pears, and other fruit are packed, and the ordinary fruit baskets, are so inconvenient, as to seriously restrict the sale of their contents. The healthfulness of fruit is beyond question, and it is important that its consumption should not be restricted by putting it up in heavy and unhandy packages. As a suggestion towards a better way, we give illustrations of a coarse and inexpensive wicker or split basket, or hamper provided with a handle, by which it can be carried as easily as a valise. Such hampers are largely used in Europe for packing fruit, game, vegetables,

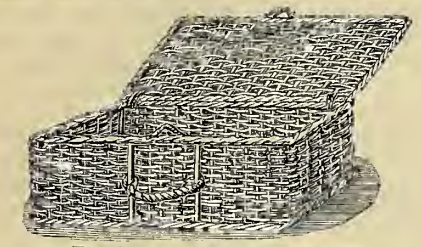


Fig. 1.—FRUIT PACKAGE, OPEN.

bottled liquids, meat, and any of those things which we put up in the square or oblong crates, which have nothing about them by which they can be picked up or carried. At figure 1 is shown the crate open, and at figure 2 it is shown shut and fas-

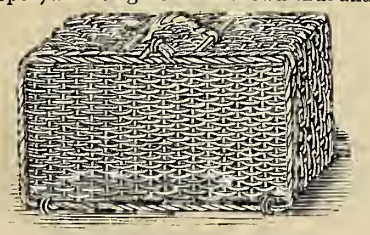
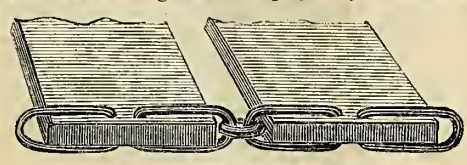


Fig. 2.—FRUIT PACKAGE, CLOSED.

tened. It may be made to hold the same quantity as a crate or a basket, and is as well ventilated, is stronger and tougher, and if thought proper, cleats of wood may be attached to the corners, so as to make spaces between them, for ample ventilation, when packed in a car. The willows should be thick and unpeeled, or oak or white ash splints may be used. The willows may be grown, or the splints made at home, and the crates may be made during the winter, at which season there is ample time for such in-door work. The cost need be no more than that of a crate, and may be even less.

## Shading a Greenhouse.

In our climate, a shade upon the greenhouse is imperative. The method most generally employed is to make the glass semi-opaque by the use of



END OF SLATS AND FASTENING.

white-wash; while this has several points in its favor, there are two serious objections to its use; it is permanent, and as it is directly upon the glass, absorbs the heat of the sun, and gives it off into the house. We recently saw upon one of the houses of Ellwanger & Barry, at Rochester, a shade which impressed us favorably, and were informed that it gave great satisfaction in operation. The shade is a lattice made of pine slats 12 feet long, one inch wide, and one-eighth of an inch thick. These slats are joined by iron staples and rings as shown by the engraving, which represents the ends of two of them. The staples have their ends turned down, and driven into the slats, and each is attached to the one opposite, by a small ring. By an arrangement of cords and pulleys, the lattice work can be raised and lowered at will. The shades run up and down, upon supports, made of pieces of scantling, placed about every six feet in the length of the roof, and high enough to raise the shade about six inches above the glass. Being thus elevated, a current of air can pass between the shade and the glass, and the light admitted through the narrow spaces between the slats, is constantly changing.

# THE HOUSEHOLD.

☞ *For other Household Items see "Basket" pages.*

## Home Topics.

BY FAITH ROCHESTER.

### Transplanting Children.

If I do very little soil gardening, it is mainly because I have so much gardening of another kind—*Kindergartening*. Many of us can not find good garden soil with the right conditions of climate, sun, and moisture; or, in other words, schools and playmates which will feed the child's growing mind with right ideas, kindness and good behavior in those associated with the little one, so that its better nature may be aroused and cultivated. Wise parents take all this into consideration in locating their homes. They consider the neighborhood influences, and prefer the vicinity of good schools. The home influence is more important than any other, and those who depend almost entirely upon schools for the education of their children, shirk their duty, and make a great mistake. But sometimes it happens that the best thing for a child or youth is, to send it away from home (even away from a *good* home), for a little while. This must be done carefully. I have held this view for many years, and the experience of the last year confirms me in it. A few weeks away from home, with some good auntie or relative, has done more to break up certain unpleasant home habits than almost any amount of correction and reproof at home. I like to have the children go away from me a little while—since it is impossible for me to go and leave them—for my own sake, too. It gives *me* a chance to turn over new leaves, and I am often glad enough to put my blunders behind me, and try whether I can not make for the future a new and better record with a fresh beginning.

I do not advocate parents shifting the burden of the training of their children upon friends, but certain little disagreeable habits that grow and flourish easily in the freedom of the home circle, die a natural death when the child finds itself in other circumstances. I have had other friends' children in my home, and have seen how their love for the home friends grew with absence from them, and how new resolves sprang up in their minds.

### The Care of Jelly and Preserves.

Last year's jelly moulded worse than any I ever made before, the result of keeping it too warm, and of not pasting covers over the glasses until they had stood open several days. They should be covered so soon as cold. I prefer a common, plain clear glass tumbler, without patent covers of any kind, for jelly. Then, as soon as emptied of jelly, it is ready to drink from, hold flowers, or as a mold for Blanc-mange or Mush. Tissue paper wet in brandy next to the jelly or jam, before covering it, in order to prevent mould, is not necessary, and the brandy almost always spoils the peculiar flavor of the jelly. With thin paper next the jelly (omitting the brandy), the mould which is so apt to grow over the top of the fruit, can be pulled off with the paper, and not affect the jelly beneath, but it is better to keep the jelly and preserves cool and dry that mould would not molest it.

### Jelly and Marmalade.

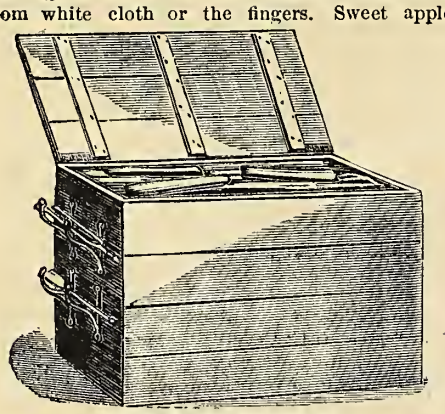
It is most convenient with crab-apples and plums, to make jelly and marmalade from the same fruit, and both are the nicer for this separation of juice and pulp. One thus saves squeezing the fruit-juice through a jelly-bag. I let the plums drain through a colander, but the stewed crab-apples (stewed soft, with very little water,) are hung up in bags to drain all night. The juice is then ready to be measured and boiled before the addition of "pound of sugar for pint of juice"—a *scant* pound for apples and plums. The pulp remaining in the bag or colander is rubbed through a sieve or colander, to remove seeds and skins, and only needing to be boiled a short time with the sugar (three-fourths of a pound, or a little less, to a pound of pulp), when it is thick and firm enough to put away. The rule is, to use ¾-lb. sugar for 1 lb. of fruit, but less is needed if you put up the marmalade in self-sealing glass jars. These jars are so cheap now that one can afford to use them for all sorts of sweetmeats, and so save a deal of trouble in their keeping. You can sweeten your "preserves" to suit your taste, not having to depend upon an excessive use of sugar to make them "keep." As all kinds of sweetmeats spoil quickly after they are opened out, it is prudent to put them up in small jars to be used up at once.

The glass jars that have been emptied of the earlier summer fruits may be immediately used again in preserving later fruits, etc. When you stew a small quantity of cranberries, you may as well stew enough more to fill a jar, sweeten them ready for the table, and seal them up *boiling hot*, and then you can have cranberry sauce when it is usually out of season. If apples are plenty, and hard to keep, fill up the empty jars with nicely stewed ones, and have them for sauce and pies.

### Fruit Stains.

But fruit stains which bother us some at all times of the year are not difficult to remove from white cloth. If the spot is small, pour *boiling* water through the spot until it disappears. This will not remove the stain if it has been previously wet, and may not extract it if the stain has been of long duration. A solution of Chloride of Lime will extract fruit stains with certainty. It will also (I am assured) remove mildew stains if applied several times, and laid in the sunshine for a little while each time. Rinse the articles well after using it, and be sure and not leave this solution on, or in, the cloth longer than a few minutes, as it injures the fabric. Put two ounces of Chloride of Lime into a pint bottle; add a little water, and stir well. Then fill up with water, and let it remain a few days, corked loosely, to let the gas escape and prevent explosion. After the liquid becomes clear, carefully pour it off from the sediment into another bottle, cork and label it, and keep in a

dark place, or wrap it with paper, to exclude the light, which injures its bleaching properties.—[The solution in which Potash takes the place of Lime is vastly better than one of Chloride of Lime, as in that Lime may become insoluble, and remain in the fabric. This solution is sold at the drug stores as Javelle Water, but it may be prepared with little trouble. See "Household Notes and Queries" on another page.—ED.]—I doubt whether this solution, so prized by city people, is any more effective as a general thing, at least for *fresh* stains, than sour milk or buttermilk. The liquid may remove some old, scalded-in stains, which milk can not affect. Milk, either sweet or sour, will sometimes work wonders in removing stains from colored goods. Only yesterday, I had proof of this. I put a cup of stewed frost grapes into a lunch basket for my husband, and forgot to cover it with a slice of bread fitted inside the cup, as I usually cover anything juicy. Half an hour after he started from home, his basket and his light grey trousers were found in the sitting-room (I was washing in the shed), and one side of the garment was streaked with dark purple stains all down its length. I couldn't pour hot water through each one of these countless spots and spatters, and I couldn't apply a bleaching fluid; but I had sour milk, and after one leg of the garment had soaked half an hour in this, no one could find a stained spot, and when the pantaloons were washed and pressed, there was no sign of grape stain. A child's dress stained with the same fruit got into the wash without attention to the stain, and now there is a hopeless light bluish spot made by the fruit-juice. Those who have no boiling water, nor bleaching fluid, nor sour milk at hand, can try the fumes of a common sulphur match held close below the moistened stain while burning. This is said to remove most fruit stains from white cloth or the fingers. Sweet apple



A CONVENIENT WOOD-BOX.

stains can be removed by sour milk, and plum stains by either sweet or sour milk, I am told.

## Another Wood-Box.

There are many places in the country, where, we are glad to say, wood is still the fuel of the household. The planting of forests upon the now treeless prairies, will possibly cause the wood-box to replace the coal-hod; and the shovel and the tongs will be restored to their places as necessary parts of the furniture of the kitchen. In the engraving we present still another box for holding fire-wood, which has the advantage of being cheap and handy. An ordinary heavy dry-goods or other box is the basis, the cover being braced with cross slats and provided with hinges, so that it can be closed when desired. It is a common experience that the shovel, if not provided with a place, is often at the bottom of the wood in the box when wanted, and the same may be said of the tongs. To remedy this trouble, four hooks—the same as used in closets for hanging up clothes—are fastened to the outside of the box, one pair for the shovel, and the other for the tongs to rest upon. A handy place being thus provided for these tools, they should, and doubtless will, be found there. A coat of paint—lead-color is perhaps the best for the kitchen—will improve the appearance of the box. A Wood-Box of some kind is needed in the kitchen of every wood-consuming family, and this will be as conducive to neatness and convenience as one more expensive.

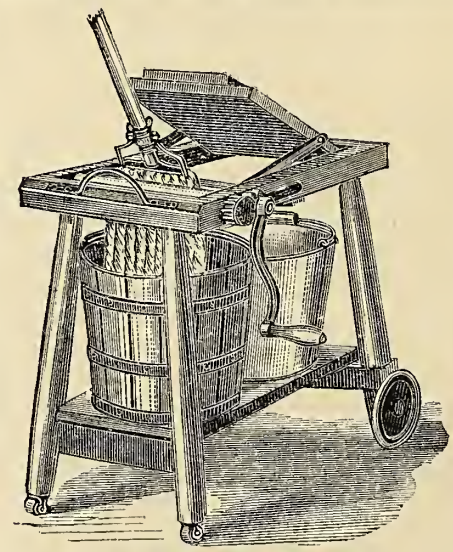
## A Feather Chair.

In the Ladies' Department at a State Fair, which we recently attended, there was a little chair made of feathers, which attracted much attention. The chair, which the accompanying engraving represents one-fifth its real size, was made entirely of turkey feathers. The back is formed by the vanes or plumes of two feathers, the quills passing down and fastening to the two rockers, thus forming the two hind legs. The rockers consist of two quills, with the vanes removed and running to fine points behind. The front legs, and the arms and "rounds" are made of the lower portions of as many quills, and two or more tips are arranged across each other, to form the bottom. It is easily constructed, and makes a neat and novel ornament. What the particular use of the feather chair is, we did not learn; but it is introduced here as a hint to those who occasionally make "fancy articles" for sale at fairs, and who wish to make something out of the usual run of such things.

A CHAIR OF FEATHERS.

## The Communities' Mop-Wringer.

When a family is increased from six to eight, to 250 to 300 members, domestic labors become correspondingly magnified. In the Oneida (N. Y.) Community, where the members live as one immense family, the consequent enlargement of tasks, which are but trivial in an ordinary family, have made it necessary to devise means for facilitating them. In August, 1877, we illustrated a Vegetable Washer, which was invented by one of the Community, Mr. J. Leonard, and we now present another of his inventions, a Mop-Wringer. As every one who uses a mop knows that the most disagreeable part of the work, the wringing, is that upon which its proper execution depends, and will no doubt wonder why such a help had not been invented long ago. Unlike the Vegetable Washer, the utility of this is not confined to large establishments, but is equally a help in an ordinary household. The Mop-Wringer, as seen by the engraving, is a modification of the Clothes-Wringer, in this case made easily portable, so that it may be carried to the work. It consists of a bench upon wheels or castors, with a shelf below, upon which one or two pails of water can be placed. The upper part carries two rollers, between which the mop



THE COMMUNITY MOP-WRINGER.

is passed, and subjected to strong pressure by a spring (not shown in the engraving), which adjusts the rollers to any thickness of mop; these are operated, as in the ordinary wringer, by means of a powerful crank. The manner of using the Wringer will be understood from the engraving, and it operates without making it necessary to touch the mop with the hand. Since its invention, another use has been found for the Mop-Wringer—that of a household truck. The lid, shown open in the engraving, shuts down flat, forming a place upon which, as well as upon the bench below, trunks and other heavy articles may be moved about, and, when made (as some are) with rubber tires to the wheels, it moves noiselessly along the floor.

## Canary Birds.

So many questions are asked us about Canary Birds, especially as to care, breeding, etc., that we reply to them in a general article. This pretty little captive bird—and its prison is a happy one, or should be made so—gets its common name from the Canary Isles, where it abounds in its wild state, and is clothed in a gray or brown plumage, quite in contrast with the white, yellow, and green of the domesticated varieties. The Canary birds have long been esteemed for their beauty and melody, and were domesticated in Europe nearly three centuries ago, where, at the present time, they are bred on an extensive scale, especially in France and Germany, from which countries we import them by the tens of thousands. The Canary-bird trade is vastly greater than would be supposed by those who have not looked into the subject. In England there have been annual shows—and what beautiful shows they must be!—for the last half century, at which large prizes have been awarded among the different varieties, which are reckoned up by dozens. So far as looks are concerned, a bird is valued according to the purity of its coloring, or if mixed, in proportion as the markings are regular. A mottled or spotted bird is not held in much esteem, while one which is a pure yellow, or a yellow with black wings and tail, is greatly prized. But above the color is the song; and in the choice of a bird it is best to observe the rule, "Sacrifice color to accomplishment." Nature seldom unites rare beauty and great accomplishments. A person should not reject a sweet singer because its tail feathers are gone; they will soon come out; but this can not be said of the voice where it is wanting. Some estimate a bird's value by the loudness of the voice; we prefer the softer—and we think sweeter—tones, in fact, have almost been incensed by the *noise* which some birds will make when they sing.

First, as to Cages, of which there are many different styles, but none should sacrifice the comfort of the bird or endanger its life. The large wooden frame cages are fast passing out of date, and are superseded by those made entirely of metal, which are neater, lighter, easier cleaned, and less liable to harbor insects. The wires, against which a bird will often pick more or less, should never be coated with paint, as it may cause its death. Ample provision should be made for food and water within the cages, and there should be a proper arrangement for hanging it up—a hook, or a stout ring, is better to hang it by than a ribbon, which in time will wear out, when the cage and contents may have a fall. Perches and a swing will of course be provided. Canaries are very fond of a bath, and should be given water for one nearly every day. The tub should be removed when the bath is over. To see the little fellow enjoy the splashing and fluttering, is worth all the trouble. Above all things in the keeping of birds, neatness is of the greatest importance. They need attention *every* day. If the bird is "too much of a trouble," then do not keep it a day. Birds are very tender things, and as such are very susceptible to treatment, good or bad. They should have a plenty of air and light, but not the dazzling sunshine. A bird should not be out-of-doors when the air is at all chilly; and in winter it is cruel to leave it in a room in which the temperature goes down to freezing or below.

"What shall we feed our birds?" is a question frequently asked, and it is an important one, as their health depends largely upon their food. Do not dose them with sweetmeats; their systems de-

mand a plain diet. The natural food of the Canaries is seeds and green herbage, and a mixture of Rape, Canary, and Hemp seed, together with Chickweed, Cress, Cabbage, etc., is found to be the most healthful. A Cuttle-fish Bone (sold at the drug stores) hung in the cage will furnish the lime they need, and which they find in the wild state.

Perhaps the most important point is to know what to do when the bird is sick. With proper care they seldom sicken, but sometimes illness is unavoidable. Birds will, without any apparent reason, take colds followed by sneezing and hoarseness. For this a bit of Liquoriee, put in the drinking water, proves beneficial. In case of loss of appetite, shedding of feathers, and general decline, a plenty of Water-cress is valuable. Young birds are frequently troubled with "Gapes," and should have an abundance of green food and be kept in a warm place. Canaries that are not properly cared for will be infested with lice, for which a little Aniseed mixed with the gravel on the floor is a preventive. Epilepsy is caused by too rich food; the cure is in quiet and a simpler diet. In cases of diarrhœa put a rusty nail in the drinking water and chalk, broken fine, on the floor, omitting all green food. A bird well cared for—and the care is by no means great—is a cheerful and cheering companion. If one loves such a pet—and most people do—the care is more than repaid in bright plumage, graceful actions, and sweet music of these little birds.

## Wild Autumn Berries.

There are several wild berries and other fruits which ripen in the fall, and are very pleasing when employed for home decoration. The ripe fruit of

The Barberry (*Berberis vulgaris*) is gathered quite largely for preserving; but it is also useful in an ornamental point of view. A long branch of the Barberry, with its graceful curve (it has its prickers, which are to be avoided in gathering—and so has the Rose), and clusters of bright red berries hanging upon their long stalks, is a thing of beauty, and when arranged with autumn leaves and dried grasses, is a joy through the winter to every eye that sees it. In pleasing contrast with the dark-scarlet fruit of the Barberry is the

Red Cedar (*Juniperus Virginiana*), with its dark evergreen branches, sprigs of which, when full of its lead-colored berries, may form a pleasing element in house decoration. For red, again, the

Winter Berry, or perhaps better known as Black Alder (*Ilex verticillata*), is one of the most

Fig. 1.—branch of winter berry.

attractive shrubs, with its profusion of intensely bright scarlet berries, which cling tightly to the slender branches. See the engraving. The common

Sweet Briar (*Rosa rubiginosa*), and other Wild Roses, will furnish bright and attractive scarlet *hips*—they are not properly berries, which are well worth the gathering, as are those of Garden Roses.

The Sumachs have large dense clusters of small scarlet, crimson, or purplish berries. The Stag's-horn Sumach (*Rhus typhina*), and the Smooth Sumach (*Rhus glabra*), are both common, and their berries differ in color with their degree of ripeness. A few of these clusters help to set off the green of the Cedar. Among many others, there still remain two kinds which should not be overlooked.

The Burning-bush or Spindle-tree (*Euonymus atropurpurea*) is a tall shrub which bears deeply four-lobed, light-red capsules (shown in figure 2), peculiarly attractive, as they hang on the long slender stems. These soon open and expose several seeds, each of which is enveloped in a dark red pulp. More brilliant than either of the above is the

Wax-work or Climbing Bitter-sweet (*Celastrus scandens*), a woody climber, which is beautiful

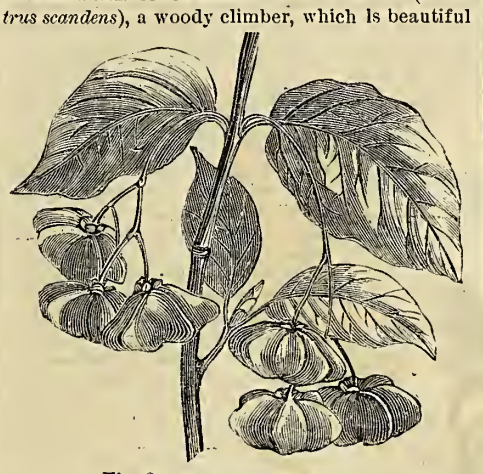


Fig. 2.—the burning bush.

for its foliage, but in autumn, when the orange-colored pods throw open their three valves or parts, and expose the scarlet pulp which surrounds the seeds, they are exceedingly attractive. In the vicinity of villages and cities, scarcely a pod is allowed to ripen; they are gathered by boys and others, who sell them in little bunches on the streets.

## Useful Bridal Gifts.

[The following very sensible article comes from "M. A. O.," Hartford, Ct., and we have no doubt that its suggestions will be as welcome to those who are puzzled "what to give," as the gifts themselves will be to the young housekeeper.—Ed.]—Having obtained much credit for the "Bridal Gifts" that I have for many years been accustomed to make, (which I call "Housekeeper's Outfits,") and being requested by a friend, who had heard much of them, to give her a list of the articles comprising them, I thought it might be well to send you a copy for your excellent paper (from which I have gained many valuable hints and recipes), that others in all parts of the country might have the benefit of it:

I would remark that the articles made of *old materials*, such as sheets, pillow-slips, table-cloths, towels, etc., are the most valued by young housekeepers, but my list comprises: One doz. new brown dish-towels; one doz. new brown hand-towels for the kitchen. For dining-room use: One doz. good towelling, for china; one doz. linen tumbler napkins; one doz. cotton diaper, or towelling, for silver—these last two to be made square; one doz. window cloths, made from old sheets, 25 inches or more square, according to the size of the sheet (marked with Indelible Ink "W. C."); one doz. wash-stand napkins, for wiping the dishes on the stand, made of old table-cloths, 20 inches or more square (marked "W. S.") These last two articles to be slightly hemmed. One doz. dusters, made *double*, of old Paper Cambric; one doz. dish-cloths, or washers, made of towels, worn very thin, doubled twice, run together on the edges, and quilted from corner to corner; one doz. China and window-washers, made in the same way, of old damask or linen towels, and table napkins. One dozen iron holders and wipers—these last two made of old ironing sheets, and one doz. scrubbing cloths, made of new or old bagging, or any coarse brown stuff. These articles I do up neatly, in separate packages of a dozen each; tie them up with red tape, which I procure from the merchants' string drawers; label them with visiting cards, according to their uses, and they always make a good show among the other "Bridal Gifts;" and I have had young housekeepers that I had fitted out in this way, after they had been keeping house for several years, tell me that their stock of conveniences was not yet exhausted, and that they had found these things among their greatest household comforts.

# BOYS & GIRLS' COLUMNS.

## The Doctor's Talks.

In this Talk I wish to "catch up," so that we may go on regularly. If, when I began, in March last, I had thought of beginning to talk about *Matter* and its properties, I should have arranged the subjects differently. I like, always, to begin at the beginning, so that each step will lead to the one beyond, and there will be no going back to explain things. When some one of you wished to know about the *Center of Gravity*, I found that I was obliged to say something as to *Gravity* and its effects upon Matter, and this made it necessary to talk about *Matter*, as these Talks for the months just past show. Now that we have for several months talked about

THE INTERNAL FORCES,

those which act within a body, such as *cohesion*, and the *elasticity*, *hardness*, and other properties due to it, as I have tried to show for the past five months, I would go on with the *External Forces*. Properly, *Gravity* or the *Attraction* of *Gravitation* would come next, but I said about that nearly all that you need to know at present—but not quite. Let us now go back in our review to

GRAVITY OR ATTRACTION OF GRAVITATION,

which you will remember was described as the force that causes all bodies to attract each other, and that it acts in proportion to the size of the mass, and that the earth, being the largest mass of matter near us, attracts to itself all other bodies. The measure of the force of this attraction we call *weight*. We measure the force of this attraction in ordinary weighing. If we buy sugar, we get as much sugar as will be attracted towards the earth with the same force as a piece of iron, or weight which it is agreed to call a pound. Then we have also considered

THE SPECIFIC WEIGHT,

or the *Specific Gravity* of bodies, in which they are compared with the same bulk of another body—water—as I tried to show you last month. Still there is something more to say about *Gravity*. When a body is raised above the surface of the earth, and its support is taken away, the earth attracts it, and it will fall. Some of you may have climbed a tree, and trusting to a decayed limb, have obeyed a natural law, and came down to the earth. At such a time you did not naturally stop to think much of

THE LAWS OF FALLING BODIES.

You did not then think that a boy of half your size, would have reached the earth just as quick, that one twice as large would have reached it no sooner. Yet it is one of the *laws of falling bodies*, that all bodies, large or small, fall with the same velocity—reach the earth in the same time, when dropped from the same hight, as described in May last (*body*, you will recollect, is a term for any mass of matter, and does not refer to your particular *body*). Another law which you should know is, that bodies, in going towards the earth, fall

WITH ACCELERATED MOTION.

That is, if we drop a stone from an upper window, it will fall a certain number of feet in the first second of time, and in the next second, twice as far as in the first, in the third second, five times the distance. This rule is stated thus: The space passed through by a falling body, is as the square of the time. Careful experiments have shown that a body falls 16 feet in the first second of time. When a stone is five seconds in falling from a precipice, we say 5x5 is 25, the square of the time, and 16 feet, (the distance for one second) 25×16=400, the distance the body fell, and consequently the hight of the precipice. As space is scarce, and as you may think the subject dry without engravings, I make this Talk a short one. An interesting and useful application of another law of falling bodies is seen in the pendulum, but I must leave this important subject until next month. The Doctor.

## The Doctor's Correspondence.

"ARE GOLD-FISH FOUND IN THIS COUNTRY?"

Yes, they are *found* here, but are not natives. I can recollect when these Golden Carp, or Gold-fishes, were great curiosities. When I was a youngster, an uncle, who was a sea captain, and sailed to China, brought us home a couple of Gold-fishes in a glass globe, and I can recollect what a curiosity they were, and how people used to call and see and wonder at them. Now they are very abundant, and being perfectly hardy, have been placed in ponds in various parts of the country, where they have multiplied at a great rate. Many years ago the bank of a pond somewhere along the Hudson River, that was stocked with Gold-fish, broke away, and allowed the fish to enter the river. Now they are very abundant in the Hudson and the waters running into it. I have even seen boys catch them in New York City. In the upper part of the island there are whole blocks of sunken lots, many feet below the level of the streets; these connect with

the river by sewers, and are really ponds rather than blocks. The fishes find their way into these places, and are caught by the youngsters. When an animal or a plant, brought from another country, makes itself at home, and multiplies itself, it is said to be *naturalized;* we may say, then, that though the Gold-fish is not a native, it is thoroughly *naturalized* in this country.....One young friend wishes to have me tell him something about

."WHAT GAS IS,

and an experiment to prove it." His question is not put very clearly, but I think I know what he means. In my "Talks" I shall in time try to show how gases differ

THE CURIOUS HATS OF THE WELSH MARKET WOMEN.

from other kinds of matter. In the meantime it may interest him to know that he not only lives all the time in gas, but could not live without it. The air is a gas—properly speaking, a mixture of two gases. But there are gases different in all respects from those which make up the air, and the subject is quite too much for our answers to correspondents....Most of my letters ask me something, and it is not often that I get a letter that gives me some information. But here comes a letter from New Jersey telling about Master Teddy, a little fellow who had been travelling in Europe, and after he came home, told of the curious things he saw while away. He says that

THE "CURIOUS-EST THING HE SAW

were the hats worn by the Welsh peasants." Master Teddy was so much struck by the hats worn by the women on market days that he wished to bring one home to show to his friends in America, and he only gave up the idea when his father jokingly told him that no ship smaller than a man-of-war could carry it. As he could not bring the hat, Teddy had Agnes Henry make a drawing of the hats and their wearers. I think you will agree with our young friend that they are the "curious-est" kind of hats; with these tied down over their muslin caps, the women must have appeared very strange. I hope that Master Teddy may tell of some other things he saw, and may have some other drawings made while he was abroad.

**No. 470 Illustrated Rebus.**—A truthful and moral sentiment worthy of the regard of every one.

## To All Boys and Many Girls.

The Telegraph is coming into use everywhere, almost. A single wire stretched between two points, miles, or hundreds or thousands of miles apart, with a little instrument at each end, enables two persons, thus separated, to hold instant conversation. The language used is very simple, easily learned, especially by young persons. It is just as easy to read .. .. —— . .... .. —— . as to read c o m e h o m e. Two clicks, an instant of rest, and another click, are as readily understood, as the sound *see* (*c*). Two clicks are as easily understood as the sound *oh* (*o*), and so on.—It would be a good thing for all boys to understand making and reading telegraphic letters or sounds, and would be interesting to most girls and young ladies also. A large number of our telegraph offices are *manned* by ladies. Telegraph men tell us they prefer Ladies as operators in small offices, for they are on hand more regularly, filling up the spare or waiting hours with needle-work. But aside from its use as a means of livelihood, telegraphing is interesting. Wherever there are two houses of neighbors or friends, or two shops, or two or more buildings on a farm, between which it is desirable to have frequent messages, or communication, a single wire stretched between them, with the needed apparatus, enables it to be done instantly, at all hours, in *all* weathers.—Just now there are good working telegraph machines, so cheap that a *pair* of them can be got for only $12, with batteries, instruction books, etc., all complete. The only extra expense will be the stretching of a cheap wire between the two places to be fastened on trees, or even along fences.—The wire may be bent aside into any number of houses, bringing them all into a talking connection with each other for an additional expense of $5.00 for each added house. We would like to have a great many of our young readers, of both sexes, put up such lines between their dwellings this fall and winter, and thus learn to become expert writers and readers by telegraph. It will need very little effort for any one or two boys to get up a club of 14 subscribers, and thus secure the above apparatus *free*, as offered in premium No. **21**...By the way, there are a great many very fine premium articles that our young friends, boys and girls, would much like. Some of them can be easily obtained without money outlay. Better study through the premium list given last month, pages 409 to 440, and see the things that you can get.

## Our Puzzle-Box.

NUMERICAL ENIGMAS.

1. I am composed of 22 letters:
   My 20, 3, 5, 4, 21, 16, is what a flea is.
   My 13, 4, 12, 21, 1, is the name of a tree.
   My 11, 18, 3, 14, 15, 6, is what we all should be.
   My 17, 8, 9, 10, 2, 19, is a weapon.
   My 6, 11, 4, 7, and 16, 11, 22, are pronouns.
   My whole is a well-known proverb.
   F. L. HOLLENBURGH.
2. I am composed of 22 letters:
   My 2, 19, 13, 14, 6, 3, 4, is a city in France.
   My 5, 19, 21, 7, 8, 11, 10, is a city in New Jersey.
   My 12, 14, 20, 9, 16, is a city in China.
   My 18, 5, 15, 1, 6, is a city in New York.
   My 17, 19, 2, 22, is a city in New York.
   My whole is a city, and where situated.
   C. W. HURST.

DECAPITATIONS.

(Take away the first letter.)

1. Behead a grain, and leave that with which it is cooked.
2. Behead a certain kind of wood, and leave what a shad is.
3. Behead a particle, and leave a nickname.
4. Behead a bend, and leave a vessel.
5. Behead a portion of time, and leave a pronoun.
6. Behead a verb, and leave a preposition.
7. Behead a loud noise, and leave a propeller.

Place the beheaded letters in their order and make a fruitful theme for conversation. JACK.

METAGRAM.

In a word of six letters (something without which no man could live) may be found eighteen nouns (amongst which are four different animals) and ten verbs. What is the word?

DROP-LETTER PUZZLE.

(Every other letter of the word, beginning with the first letter, is left out. Instead of defining each word we give a sentence which the word is to complete.)

1. His complaints were —r—n—d—c—s.
2. I was treated with great —o—d—s—c—s—o—.
3. A habit of —r—c—a—t—n—t—o— is deplorable.
4. You will find the task —m—r—c—i—a—l—.
5. The prisoner was safely —n—a—c—r—t—d.
6. Patience is a desirable —h—r—c—c—i—t—e.
7. You need not —x—o—t—l—t—. I am determined.
8. I was completely —n—a—a—i—a—c—.
9. My teacher was a rigid —i—c—p—i—a—i—n.

CROSS-WORD.

My first is in tumbler but not in the glass,
My next is in maiden but not in a lass,
My third is in justice but not in the law,
My fourth is in hatchet but not in a saw,
My fifth is in apple but not in a plum,
My sixth is in finger but not in a thumb,
My seventh is in barter but never in sell,
My eighth is in forest but never in dell,
My ninth is in turkey but not in the hen,
My tenth is in goose-quill but not in the pen:
And now if the letters correctly you find,
They will give you advice of an excellent kind.

ANAGRAMS.

1. I canned cents.
2. A thin crate.
3. O stop deer.
4. Lover's tune.
5. Rise Rover.
6. Lading nut oil.
7. Bat's carts.
8. Magpie's girl.
9. O I more hustle.
10. Nice graves.

ANSWERS TO PUZZLES IN THE SEPTEMBER NUMBER.

DOUBLE ACROSTIC.

*Colorado—Trinidad.*

C— oa —T
O— tic —R
L— ev —I
O— fte —N
R—istor—I
A—roun—D
D—ian —A
O— l —D

NUMERICAL ENIGMAS.—1. Hate the evil and love the good. 2. United hearts death only parts. 3. Dr. Livingston.

CROSS-WORD.—Electricity.

PI.—Snow is congealed vapor, which would have formed rain; but through the coldness of the air has been frozen in its descent, into crystaline forms.

## The Second Drawing Lesson.

It is best for us to continue with straight lines, but let us put them together so that some carpenter and joiner work may be represented. In the first place in figures 1 and 2 are shown two of the various ways of uniting timbers, called scarfing. In the first case the lines where the two pieces come together are all oblique, that is, not parallel with the upper and under sides of the timber, as is the case in the second. The square place in the center represents that a portion of wood has been removed from each piece of the timber, and a block driven in after the parts of the splice have been brought together, thus serving to bind them. This shading is done by drawing a few lines near together. We will have more of this later on, and also we shall show how to represent that there is a hole in the timber, etc., etc. Again, suppose you wished to show how a piece of timber ought to be fastened together, by the joint called the "dovetail," so named because the pieces that fit into each other are broader at the ends than below, as is the case in the tail of a dove. In figure 3 a short bit of timber is represented as made up of two pieces "dovetailed" together. Ten short, straight lines, passing across the two faces in sight, in a zigzag manner, show this particular method of joining. If it was thought best to show the face of the "dovetail" before it was joined together, a few lines would make it clear as is the case in figure 4. It might take much time to explain in words what a few lines will show. It would be very hard to find a first class carpenter and joiner without a pencil in his pocket, and if you could look over his books and papers, many drawings would be found. It is not necessary for us to give any more illustrations of ways of joining together, these you can find, and draw for yourselves. In the barn, beams and braces may be found, and from them several drawings may be made without any great trouble.

Fig. 1.—OBLIQUE SCARFING.

Fig. 2.—SQUARE SCARFING.

Fig. 3.—DOVETAIL JOINT.

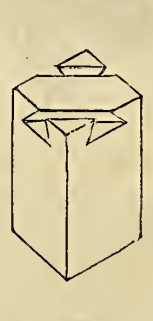


Fig. 4.—THE FACE.

In the next place we will try our hands at drawing a table—a very simple one—and for that reason we take it. Perhaps you may find one like it (fig. 5) in the kitchen. We have seen such used for general kitchen work, and they are the best for such purposes, because strong and

solid. Those who have these tables can draw them, and those who have other kinds can draw their own. If it is preferred, draw a stand; it will answer our purpose as well. First, draw the top, making it of any shape required by the position from which it is seen. In the next place put on the legs, by drawing the front or facing corners, remembering that, no matter what position you

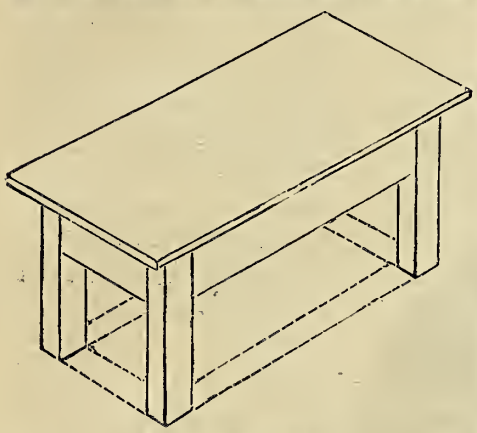


Fig. 5.—THE TABLE.

may be in, the legs must run straight up and down—be perpendicular—and all of the same length—at least in any ordinary table, like the one shown in the engraving. The side pieces are next put on, and the table is finished by drawing the inner side of the front legs, and the portions of the back ones that may be in sight. The dotted line joining the feet of the legs should form a rectangle similar to the top of the table. After having drawn the table in one position, draw it as seen from another part of the room; or the table can be turned around until the position suits—just as the artist twists your head and body this way and that way, to get the best position. There is much to be learned in sketching so common a thing as a table, and at first some patience may be required—there is much in getting accustomed to the use of the pencil, and such objects are better to begin with than animals or plants. When the table has been made, of course some chairs will be the next in order. It may not be as easy to find a chair with outlines that are all straight lines—such chairs are not so common as in the days of our grandfathers. Those who have doll chairs may be provided for. To draw a chair like the one shown in figure 6, is, with the practice we have had, mostly a matter of time. Begin with the seat, and then the legs, just as in the table, and finish the back the last thing. How many get it right the first time, and do not have to write under the picture "*A Chair*," that others may know what it is? A great many, we suspect. Now turn the chair around, and try again, after which it can be turned down on the side. When it has been taken in various positions, put the chair out of sight, and draw it from memory. Bridges, houses, barns, etc., are drawn before they are built, and sometimes every piece is put together, *on paper*, by the architect, while the wood is still standing in the forest, and the iron is in the mine.

## Spiders, Spinnerets, and Cobwebs.

At the very outset we feel that there is a great dislike for Spiders. The very word seems to have something in it that makes some people "crawl all over"; and, knowing this, we fear that it must be up-hill work to make such a subject interesting to our young readers. Within the past year a neat little book has been published on Spiders, ("The Structure and Habits of Spiders." by J. H. Emerton, Salem, Mass.); and we shall draw upon this for facts and illustrations. The Spiders form a family of animals somewhat closely related to *insects*, the beetles, butterflies, etc., on the one side, and crabs and lobsters on the other. Spiders have eight legs—enough for two

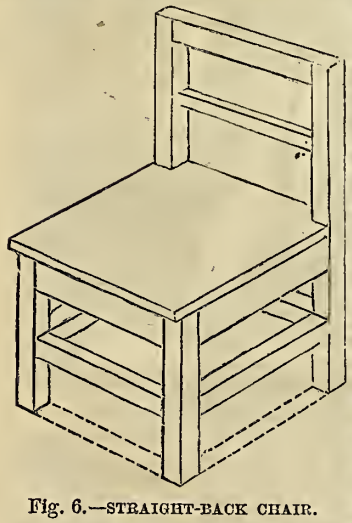


Fig. 6.—STRAIGHT-BACK CHAIR.

cows or four boys—and the same number of eyes. How strange a cow would *look* with eight eyes, and what a terrible thing to see an owl would be if we should increase its great "lookers" four-fold! In figure 1 is shown the common Grass Spider, which constructs such beautiful cobwebs upon the wheat stubble, and over the pastures which are so plainly seen on a damp morning in autumn, and considered by the weather-wise to be a sign of fair, or rainy, weather, we forget which. The long legs, four pointing forward, and four backward, are easy to see, but that they are jointed much as our fingers and toes needs closer looking. The eyes are small, only two of which can be seen in the figure, as little dots on the end of the head. The spider's head is a very pretty sight under the microscope, as it is furnished with various parts, among others the jaws and teeth for chewing its food, and the gland or sac, which furnishes the irritating fluid which stings when a spider has bitten in self-defense. When we were a boy—like many another farmer's son, we had an "every-day" and a Sunday pair of boots—one Sabbath the church exercise was of little or no interest to us on account of the itching of an instep, and matters grew no better until we quietly removed the boot, which was no easy task right in church (Sunday boots get pretty tight some times before they are turned over for "every-day"), and a spider jumped out and was glad to get away. Spiders *do* bite, but in most cases only their regular food—as flies and other insects—when cornered, as the one was in the boot, they will show fight. Great stories have been told of the bites of spiders, but probably they are largely untrue, as are those in which the bite has been cured by music. Spiders are not so bad as many would make out; they have a great deal of *heart*. Figure 4 shows the bigness and also the shape of a spider's heart. It is a *great* heart you may think. Perhaps the most interesting feature of spiders is their spinning machines, by means of which a thread is spun so fine that it would take 7,000 of them, placed side by side, to make an inch, while a thread reaching around the earth would weigh less than a pound, and yet one of these threads is made up of a number of smaller ones. The spinning is done by the *spinnerets*, which are situated at the back end of the body, and in some kinds of spiders (fig. 1) project outward considerably. Figure 3 shows a highly magnified view of the spinnerets as seen under a magnifying glass. The spinning organs, which resemble four burs somewhat, in the engraving, are made up of a cluster of tubes, a single one of which is shown in figure 2, and out of these the soft sticky material is forced by the spider. As the thread passes out it unites with the others, and, soon hardening, becomes a tough, flexible, and smooth thread, up and down which the spider can run. The hind legs often help in the spinning by pulling the threads out of

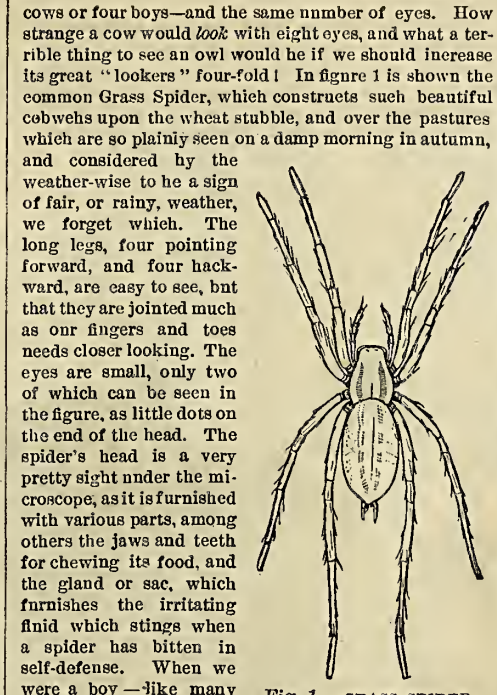


Fig. 1.—GRASS SPIDER.

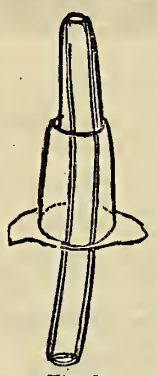


Fig. 2.

Fig. 3.—SPINNERETS, MAGNIFIED.

the spinnerets. hand over hand (leg over leg) as it were.

Spiders often descend very rapidly by spinning out the thread by which they hang, stopping almost instantly—and starting again, when they sometimes get the right swing, and land far to one side. Next to the spinning machine in interest are the webs which the spiders weave out of their threads. They show great skill and calculation in the construction of their webs, and an equal degree of fortitude and perseverance when the web is broken or some other trouble is in the way. The lesson of "Try, try again," which Robert Bruce is said to have learned from the spider in the barn led him to final victory over the English, and set Scotland free from the tyranny of King Edward. We could all learn much from these despised spiders which might lead us to as great a triumph (though in a different way), as Bruce gained at Bannockburn. A spider's web often lasts a whole season, but, like a fisherman, he must keep good watch of his net and mend it frequently. Nearly all web-spinning spiders live *under* their webs, with backs downward—upside down to us—but as they can hardly walk "right side up," it must be all *right* to them.

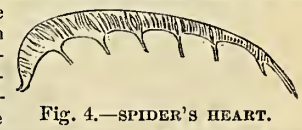


Fig. 4.—SPIDER'S HEART.

The webs are of many different shapes—sometimes in the form of a dome, in the center of which the spider resides, and is ready to rush out at any moment when a fly or other insect is caught. The round webs are the most common—and altogether too common—in the corners of rooms, about old barns, and many other places. An illustration of these familiar webs is given in figure 5, not because it will be new to many of you, but to show how the spinner makes its net. The spider first spins a line across the place chosen for the web, then returning on it to the middle, another line is attached, and as it runs to the end of the old line, the new one is spun out, holding it away from the old one by the hind legs, when it is fastened some distance from the first, thus making another *ray* or rib. In this way the framework is constructed, consisting of threads running from the center to the outside, like rays of an umbrella. The spider next puts in the cross lines by climbing across from one ray to another, as it is seen to be doing in the illustration. After the web is finished, a thread is connected with it and the nest, and the spider keeps its feet upon this

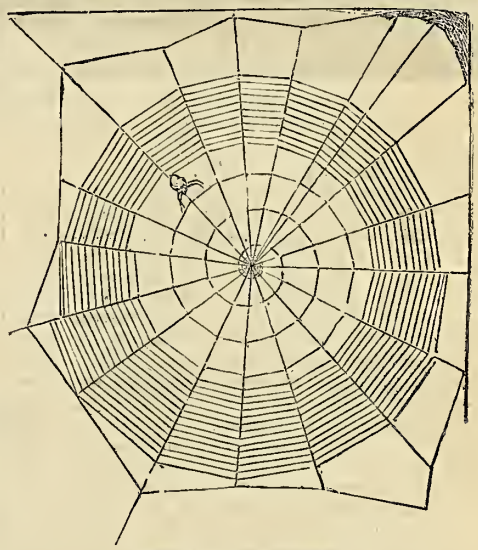


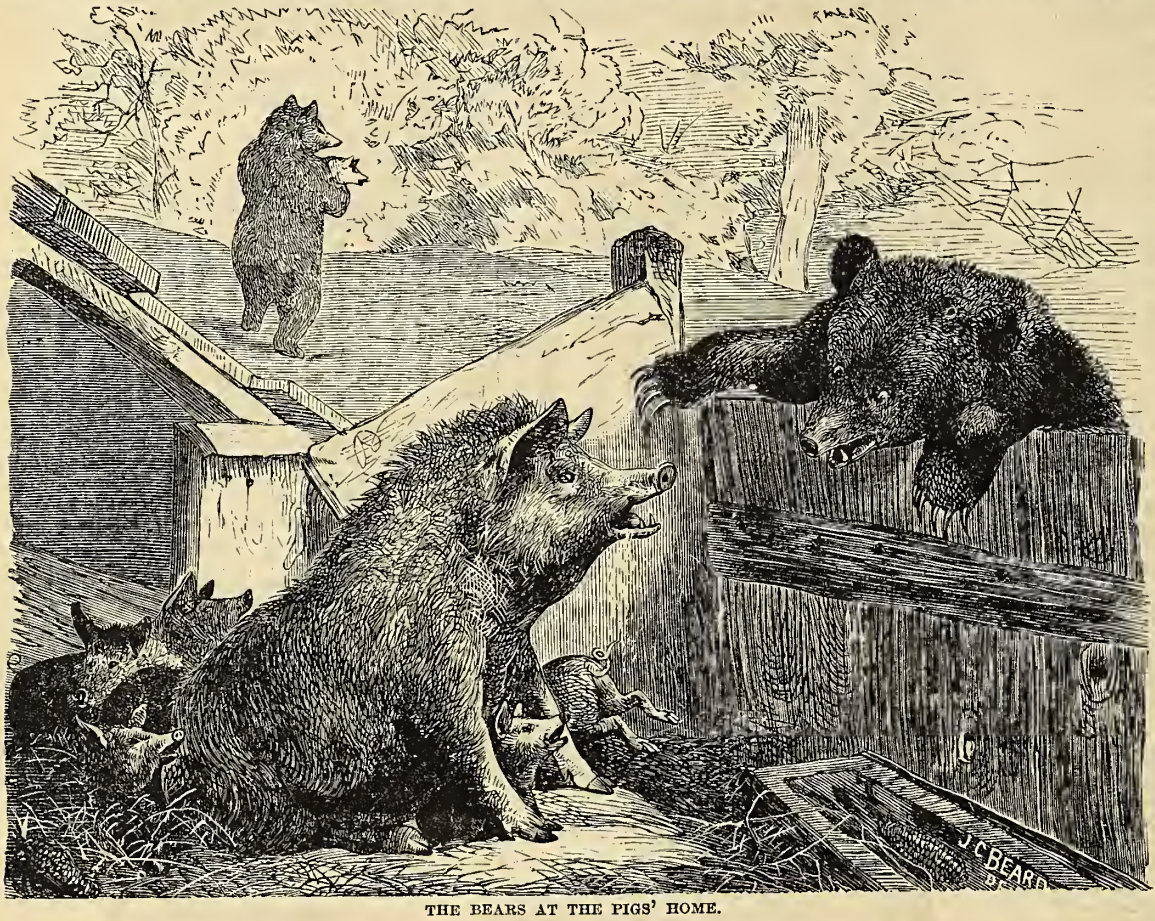
Fig. 5.—A COB-WEB.

while in its nest, to feel when anything is caught—just as the boy knows when a fish is at his hook by the *feel* of the line or pole—a sort of telegraph which brings good news to the spider, but a death message to the unsuspecting fly which has lucklessly walked into the parlor of the crafty, cunning, sly, and watchful spider.

## How Bears Go to Market.

In the early days of our country—and it was not very many years ago—bears were more common than now. They were the terror of the children, so that even to the present day, in the older settled parts of the United States, the word bear has much of its old *eat-you-up* meaning clinging to it. Children are sometimes frightened by thoughtless persons, who ought to know better, by: "O! there is a *bear*," or "Look out, the *bears* will eat you up." We shall never forget how much pain some one once caused us by jumping out suddenly, with a savage growl, from a dark bush by which we were passing with a pail of milk. He, it may be, remembers the scene, though it was too dark for much to be noticed, and as for the milk—well! the cows did not give much that night, even though it was late. Bears are very strange animals, and along with their savage nature they possess a sagacity, or shrewdness, that makes us admire as well as distrust their actions. As a general thing,

people are slow to grant that dumb beasts have much wisdom; but the more we observe the doings of animals the more we are convinced that this notion is incorrect. Bears can be sharp with their wits as well as their claws. Some who have seen bears, think they are




THE BEARS AT THE PIGS' HOME.

sleepy animals; and so they are, sometimes giving the whole of the winter months to solid slumber; but during the summer, and along in the fall, they are wide-awake, and keep pretty busy getting a living for themselves and family. Bears are fond of several products of the farm, especially pork, which they prefer fresh, young, and tender. A young pig is a bear's first choice for a meat dinner. This being the case, it is not strange that many a mother pig has had her offspring leave her suddenly and forever in early life, by the *pressing* invitation of a bear. For a single bear to invade the pen of a stern—not to say cross—and powerful sow, is not always pleasant, and, to avoid this, matters are sometimes so arranged that two or more bears go together and thus divide the danger and the spoils. The engraving gives the method of operation as practised by these thick-pated but sharp pig-thieves. One bear—probably the best talker—apparently gets into a talk with the mother pig, much to the dissatisfaction of her children; we may imagine that this bear tells Mrs. Sow of the duties of a good mother, and how she should always provide a plenty for her little ones; and as the conversation gets exciting, as such talks always will, a third party settles the difficulty—so far as the visitors are concerned—by capturing a pig unnoticed by its real owner. This is not courage, but strategy, and the worst kind of stealing combined. The only commendable feature in the whole transaction is the acuteness with which the end is reached. It will probably be a long time before bears will be looked to as models of uprightness, even though they may walk upon their hind limbs. They embrace every opportunity to get along—and sometimes a man is the opportunity. The time will soon come when bears will be seldom seen, except in such places as Central Park, and the menageries which go through the country, such shows would lack one of their greatest features, in the eyes of the boys and girls, if they did not have at least a couple of big bears and a little one or two.

## The Young Carpenter.

If an American boy, at least an American *farmer* boy, can have the run of a work-shop—especially if it is well supplied with tools, and he can have a free use of them—he is happy. There is in the head of nearly every young American a desire to "make things," and this desire needs but a little encouragement, or even an opportunity to develop, and there is sometimes an inventor "born to the world." I wish every farmer had a first-rate shop in which were all the tools that a farmer ought to possess, and in it, on many a rainy day, the boys could be amused, instructed, and employed. Edge-tools are dangerous things, but to recommend not using them at all is like trying to learn to swim without going into the water. It is not necessary that a little child should have the broad-axe to work with; there is the hammer and a few nails, and some pieces of boards; take those and let him build what he can—hammer away, have a good time, learn how to drive a nail, how to pull out and drive it again. It is with a mixture of pleasure and regret that I recollect, and it was several years ago, the first big thing that I tried to make in the shop. It was not a mowing-machine, or a steam-engine, or a "perpetual motion,"—I had thought of that, and what boy has not?—but simply a new kind of a wagon jack. You perhaps know very well that wagon jacks are very handy things, but people often expect too much of them—they think that when made *just the right way* but little work is needed to raise the wheel. Now-a-days this machine is quite perfect—and if you have been to the fair, as I hope you have, several, all *the best*, were seen. Well! I had the wagon jack fever very soon after I had got along so far as to be able to use the *draw-shave* and *hand-saw*, and, like too many inventors, I had but a poor idea of what I wished to make, other than a "Jack" must be constructed. All sorts of figures were drawn on all sorts of boards, and various pieces were whittled and shaved out, but for a time no great progress was made. It was such a great thing that I was working on that of course no one else must be let into the secret—not even the other boys. They could see me busily cutting, whistling, and planning, but none of my ideas were to be for their benefit. How carefully I hid away every piece as it was completed—and many a piece there was. As I now look back, I have to laugh at the strangeness of the machine. None like it has ever been seen, and I probably never shall see one working on the same principle. I could not describe it to you, and to have the artist make a figure is entirely out of the question. I will simply say it had a number of cog wheels, or was to have, and a crank and a long iron bar, several adjustable pins, a catch—yes, there was a *catch* in it, and a very large one too—together with a side-wheel motion. The machine was named before it was made, and was to be patented and sold as: THE NEW AMERICAN DOUBLE ADJUSTABLE CIRCULAR MOVEMENT WAGON JACK. It was reasonable to suppose with such a good name it would sell; and dreams of large wagon loads of these "Jacks" going out of my factory to supply a great want, almost made me wish I did not have to do *ordinary* farm chores, like bringing in the wood and splitting the kindlings. It did *sell*, and when the men folks caught me trying my rough, half-finished model on the light buggy, they were so overcome that I burst into tears, and my grand scheme *exploded* too. This was a heavy blow to me, but with a few kind words of encouragement I started off on another track; a squirrel cage, a writing-desk for sister, or some other such thing, and was probably strengthened by the great trial through which I had passed. I lay much stress on encouraging words from those older than ourselves, followed now and then by a helping hand. If a father can help his son fix on the cover to his kite, or assist in riveting the tongue-irons to the little wagon, the boy is made happier than if he gave him something that cost money, instead of a few minutes. The artist has given us a view of a carpenter's bench, well equipped with tools, at which a boy is making the most of the situation and his time. There is the same trouble with this bench as with all others not made for boys—it is too high; but the youngster has overcome this by placing a board along the side, resting the ends upon a block and tub—I hope he will not injure the tub—and is making a fine lot of shavings with the plane, and doubtless is working for more than the chips he makes. At a guess it is a chicken coop, which is to be ready by next Thursday, when "Beauty" is expected to come off with a full brood of little chicks. What large slippers the boy wears! and here I am called upon to guess again, for the artist is not at hand, and I can not ask him why it is so. The boy has been playing in the wet, or has been on an errand, and has got his boots wet through, and while they are drying behind the stove he has slipped into his father's slippers, and has slipped out into the shop, and is slipping the shavings off of the board. I guess, also, that he has no stockings on. How many see anything that would suggest that this shop is used in the evening is a great wonder to UNCLE HAL.

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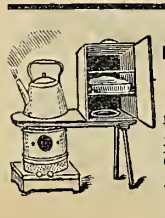

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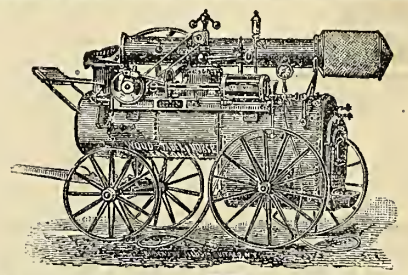

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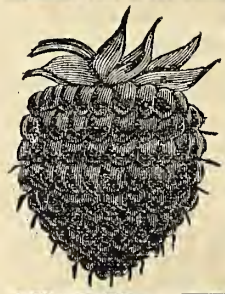

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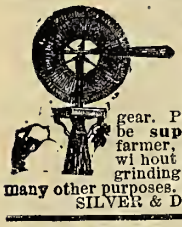

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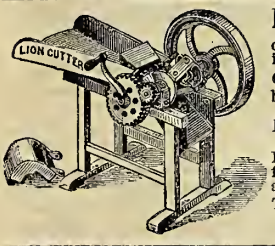


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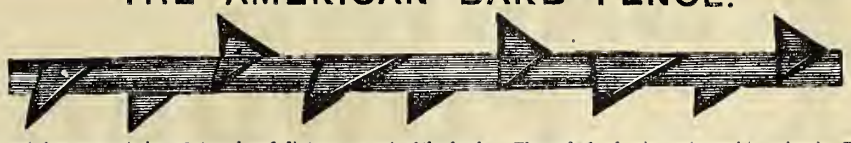

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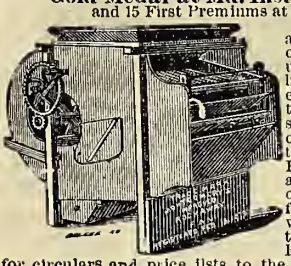

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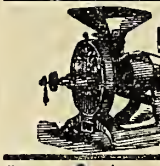

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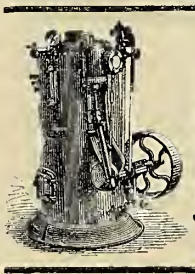

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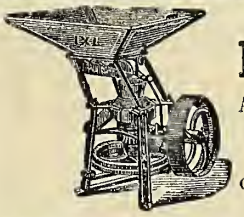

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**Cheap, Effective, and Durable.**
CAN BE RUN BY ANY POWER.
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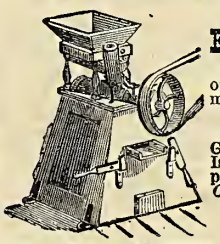

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**STEEL**
Is simple, durable, and cheap. Grinds all kinds of grain rapidly. Is adapted to all kinds of horse powers. *Send for Descriptive Circular.*
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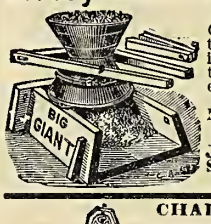


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Continued from Page 456.

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**New Subscribers** are being added to our enlarging circle of readers, and we repeat for their benefit what older readers are aware of. We are glad to receive their inquiries, and will do our best to answer them, but we can give no attention to these unless accompanied by full name and address. We have no time to bother with anonymous letters. We rarely publish names; and writers may be sure that we shall not do so if they indicate a wish to that effect. Use whatever signature is fancied, but always give the real one besides.

**Georgia—Commissioner of Agriculture.**—The monthly report comes to us, and to our great surprise we find a new name, that of John T. Henderson, as Commissioner, in place of the former most excellent officer, Dr. Thos. P. Janes. What were the influences that effected this change we are not informed, but it is no disparagement to the present incumbent to say, that the former Commissioner has set an example in the way of devotion to the interests of the agriculture of Georgia, and intelligent appreciation of the duties of his office that he will be most fortunate to equal. Here now is a chance. A Commissioner of Agriculture has been needed in Washington these many years. Did anybody care a straw whether the Department was made creditable and useful, Doct. Janes would be caught up at once. But there is no hope of that. Doct. J. is utterly disqualified for the office of Commissioner of Agriculture. He unfortunately knows something about Agriculture.

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**Plowing when Land is Dry.**—"O. H. S.," Susq. Co., Pa. If the ground turns over well, it makes no difference whether it is dry or not, so that it is not so wet that the pressure of the plow packs and plasters the surface and causes it to dry in lumps. Plowing wet soil is injurious, but dry soil may be safely plowed.

**Farming in Iowa.**—"P. H. B.," Sharon, Mass. Spring wheat is grown in Iowa. There is less inferior land in Iowa than in any other State, and one can hardly go astray, so far as the quality of land is concerned, in selecting a locality. In other respects there is here, as elsewhere, considerable room for a choice of farming land.

**Peeling Bark.**—Farmers who own timber land should understand the value of the bark upon it. The barks used in tanning are Hemlock, Oak of different kinds, Birch, and Spruce. The bark of second growth, and small timber, is worth more than that of large trees, and a corresponding value should be put upon it. Tanners are now making contracts for bark, and as they are thoroughly well informed as to the details of their business, and naturally use this knowledge for their own advantage, farmers who are ignorant of it suffer seriously in the conflict of bargaining. The value of bark must gradually increase as the stock of it becomes less, and the demand for it grows larger. In Europe, tanners' bark is worth from $25 to $40 per ton. Here it varies from $6 per ton (or cord, which is equivalent to a ton of 2,240 lbs.,) down to $3, or what the tanner may wish to give. An acre of small Hemlock has been known to return $100 for the bark on it, leaving nearly as much in addition for the wood. This was in the neighborhood of a tannery where dry Hemlock wood was used as fuel, and under favorable circumstances. But it shows the value of a timber lot, which is often considered as an incubus on a farm.

**Wheat in Nebraska.**—"W. D. H.," Clay Co., Neb., states that the yield of wheat with three of his neighbors was 6½, 9, and 10 bushels to the acre respectively. He wishes to double that yield. "Man proposes, but"—accident disposes in many cases, and weather and season may destroy all hopes. Land that is now plowed for wheat may remain until spring, when it would be well to cross plow it before sowing spring wheat.

**Plymouth Rocks.**—"J. H.," Hood River, Oregon. Plymouth Rocks should have no feathers on their legs or feet. Some P. R. hens lay white eggs and some lay brown ones. This is an evidence that they are not yet a fully distinct breed, and some further improvement must yet be made in them by care in selecting and breeding.

**Preservation of Wood.**—Some recent experiments in treating wood with creosote, or "dead oil," as it is technically termed, prove that timber so prepared has very little power to absorb water. Hard Pine creosoted under pressure, after having been dried, was found to have absorbed not a particle of water, after two days soaking. Spruce absorbed only .02 per cent of its weight, while ordinary dry Spruce absorbed .33, or 16 times as much. The California Redwood absorbed nothing after treatment, while previously it absorbed nearly .5 per cent. As decay is proportionate to the power of absorbing moisture, some woods treated with creosote are practically indestructible.

**Disease in Poultry.**—"J. O." Inflammation and congestion of the lungs sometimes happen among fowls. The symptoms are a weakness of the legs, the fowl sitting on its rump and moping; the feathers are ruffled, and the bird frequently gasps and opens its mouth. Rupture often occurs, and the bird bleeds at the mouth. The remedy is to give castor oil, rub turpentine on the sides, under the wings, and give half a teaspoonful by the mouth

**Caponizing.**—"A. B.," Sumner Co., Ks. Young cockerels should be made into capons at the age of two to four months; the earlier the better, as there is less danger of bleeding excessively in a younger fowl, and the rib bones are more elastic than in one of six months.

**Incubators.**—"J. S. C.," Omaha, Neb. In the *American Agriculturist* for July, 1876, is an illustrated article on incubators and hatching chickens artificially. After this lapse of time there is nothing to add to or to take from the statements or opinions there given.

**Tarring a Roof.**—"H. R.," Kaskaskia, Ill. A gallon of tar may be made to cover 100 square feet of roof if laid on hot, but it would be better to cover the shingles rather more thickly with the tar when cement is used. We would use a gallon to about 60 square feet, so that 9 gallons would be needed for a roof 30×18 feet. A bushel of cement may be spread over a roof of this size, as the thicker the tar is laid on, the more cement should be used to absorb it. The cement should be sown evenly over the tar, as it is laid on the roof in strips, beginning at the ridge and working downwards. Sufficient cement should be used to leave the surface of the tar quite dry—that is, an excess of the cement should be applied.

**The Value of the Oyster.**—The dull, unmoving oyster is the cause of a very active business. The Baltimore oyster business alone has 80 firms engaged in it, with a gross capital of $7,500,000; 2,427 vessels, with 10,313 men, scoop up the bivalves from their watery beds for the reward of nearly two million dollars in the season; 13,500 men open the shells for a recompense of $2,700,000 in the season, and 1,500 can-makers earn $750,000 in a year in providing means for packing the oysters; 850 clerks, etc., do the office work, receiving $500,000 a year for their services. And the oyster is planted and sown and cultivated, and the crop is reaped, by a system of culture which is not very far removed from agriculture.

**Surface Draining.**—"W. L.," Benton, Ohio. Where the ground is wet down to the subsoil, deep drains should be made. Where the subsoil is dry the surface water may be taken off by surface drains as an expedient only. The only satisfactory way of ridding the soil of water, either from the surface or below it, is by deep drains.

**The Value of an Employer's Time.**—It is related of Clare Sewell Read, a Member of the British Parliament, and one of the Commissioners who are now in this country investigating the condition of our agriculture, that when a boy on his father's farm, he was industriously helping the men forking hay, when his father came along and said, "What are you doing? If your time is not worth more than 60 cents a day, you are fit only for a laborer. Be off, and look after the men hoeing turnips, and see that they earn their wages."—It is a rule in railroad and other engineering works, that it pays to have a "boss" over any 10 men, and that the extra work done by reason of the oversight more than pays the wages of the "boss." This rule may well be applied to farm work, and the common plan of an employer working with and leading his men may well be abandoned for a more effective and profitable supervision. But it requires tact and experience to supervise workmen, and these every farmer ought to acquire if he does not possess them.

**Dutch Farmers.**—Holland should be the agricultural Utopia, if reports we read are to be relied upon, which, considering the simple and plain but thorough character of the Dutch people, seem reasonable enough. The farmers of Holland, although possessing great wealth, do not forsake their plows, and their sons are prepared for farm work by an education at a University. The public affairs are in the control of farmers who compose the majority of the smaller legislative bodies and the Supreme States General. Industry with intelligence, and a true public spirit, make these happy and successful Dutch farmers models for the imitation of others in every country.

**Wild Rabbits.**—There seems to be, with many persons, a prejudice against the common wild rabbit—or properly hare—as an article of food, and large numbers trapped or killed, on account of the injury they do to young trees, are allowed to go to waste. On the other hand, in the months of November and December, when they are at their best, large numbers of rabbits are bought by city people, who find them both very cheap, and a most acceptable variety to the ordinary butcher's meat. Let those who have never eaten a young and fat rabbit at this season try it, roasted, potted, or made into a pie—and we are quite sure that they will not let such delicious, easily obtainable food be wasted, as it now is.

**The Weights of Mangels.**—"Subscriber," N. Y. Long Red Mangels have been grown weighing 70 lbs.; Yellow Globes have reached a weight of 45 lbs., or it has been so stated, on as good authority as most facts of this character rest upon, which is the word of the grower. The writer has grown Long Red Mangels weighing 28 lbs., and has seen them grown by a well known farmer on Long Island weighing 43 lbs.

**Apples for Cows.**—"D. B.," N. Y. A bushel of apples is too much to give a cow in one day, and overfeeding of any kind would lessen the flow of milk. A peck of sweet apples might not be injurious, although many dairymen think they lessen the yield of milk. If a cow is well fed she will milk very regularly (if a good milker) until brought into calf again; after which the milk will usually fall off in quantity. It is not at all uncommon for a good cow to be milking more than a year before she comes in again.

**White Specks in Butter.**—"M. Q. A.," Grahamville, S. C., states that the white specks often appearing in butter are pieces of curd taken up with the cream when it is skimmed from curdled milk, and they may be prevented by skimming the cream before the milk is thick. We differ from our correspondent in his view, because we have frequently taken cream from thick milk and have had no specks in the butter, and have had specks when sweet cream was churned. The cause is in the cow, and some cow's milk is never free from this fault. In testing the milk of such a cow with litmus paper, we have found it acid when drawn, and this is probably the frequent if not the only cause of it. The fault was removed by giving the cow one ounce of Carbonate of Soda in her feed once a day for two weeks, after which the milk was no longer acid.

**The Longest Wool Producer.**—"J. K.," Lonaconing, Md. The Lincoln bears the longest wool of any sheep. The wool is sometimes 14 to 16 inches long, but more frequently 8 to 12. The Cotswold bears wool from 7 to 10 inches. The Lincoln also produces a heavier fleece than the Cotswold, being a larger sheep; but the heaviest fleeces have been sheared from Merinos. A ram of this breed in Vermont last year produced a fleece weighing 33 lbs., and one in California a few years ago had a fleece which weighed 52 pounds, which last is probably the heaviest fleece on record.

**Three Horses Abreast to a Wagon.**—"G. M.," Winnebago, Wis. The only way in which 3 horses can be conveniently hitched to a wagon abreast is to put one between shafts, or a pair of poles, and another on each side of this one. The whiffle trees may be the same as those used for plowing with 3 horses.

**Rubber for Mops.**—"Mrs. A. B.," Guelph, Ks. Sheet rubber, that can be procured at any store that keeps rubber belting, is the kind to use for mops; or a strip of rubber belting may be used in place of the sheet rubber. three-ply belting will be the best for the purpose.

## November Fair List.

### STATE FAIRS

| | | |
|---|---|---|
| Alabama | Montgomery | Nov. 10-15 |
| South Carolina | Columbia | Nov. 11-14 |

### Industrial and District, &c.

| | | |
|---|---|---|
| Am. Institute | New York | Sept. 17-Nov. 22 |
| Illinois Fat Stock | Chicago | Nov. 10-15 |
| International Dairy Ass'n. | New York | Dec. 1-13 |
| Delaware Dairy'n Ass'n. | Delhi, N. Y. | Nov. 12-13 |
| Carolina Fair Ass'n. | Charlotte, N. C. | Nov. 4- 7 |

### Poultry Exhibitions.

| | | |
|---|---|---|
| Cincinnati | Cincinnati, Ohio | Dec. 24-31 |
| Central Penn | Pottsville, Pa. | Jan. 8-15 |
| Council Bluffs | Council Bluffs, Iowa | Jan. 20-23 |
| Champlain Valley | Burlington, Vt. | Dec. 16-19 |
| Brocton Fanciers | Brocton, Mass. | Dec. 23-26 |
| Eastern New York | Albany, N. Y. | Jan. 20-27 |
| Empire State | Syracuse, N. Y. | Jan. 29-Feb. 5 |
| Germantown Pet Stock | Germantowu, Pa. | Dec. 23-26 |
| Huntington Poultry | Huntington, Pa. | Jan. 12-15 |
| Indiana State | Indianapolis, Ind. | Jan. 8-15 |
| Middlesex Poultry | Lowell, Mass. | Dec. 29-Jan. 1 |
| Meriden Club | Meriden, Conu. | Jan. 6- 8 |
| Northern Indiana | Fort Wayne, Ind. | Jan. 27-30 |
| Oxford Co. | South Paris, Me | Dec. 16-18 |
| Rock River | Sterling, Ill. | Dec. 9-12 |
| Rhode Island | Providence | Feb. 4 11 |
| Southern Conn. | Bridgeport | Dec. 15 19 |
| Southern Mass. | Fall River | Jan. 13-17 |
| Southeastern Iowa | Burlington | Dec. 29-31 |
| Terre Haute | Terre Haute, Ind. | Dec. 29-Jan. 3 |
| Wabash Valley | Lafayette, Ind. | Dec. 10-17 |
| Western Poultry Club | Bloomington, Ill. | Jan. 16-23 |

**Dishorning Calves.**—"H. Q. A.," Beaufort Co., S. C. The usual method of preventing the growth of the horns of calves is to sear the first growth with a hot iron as soon as it appears. The operation is not very painful, as the first growth of horn is not sensitive, not yet being sufficiently matured to become provided with nerves.

**Scratches in Horses.**—This is one of the most common diseases of horses, and one that is caused by ill-ventilated and filthy stables. A horse's feet will get sore if he is forced to stand in a stable that is seldom properly cleaned, and upon a heap of his own excrement. The sore which appears under the fetlock joint can be cured by bathing with a solution of Sugar of Lead and Water; but it is best so to keep the horse, neat and clean, that no occasion will arise for the use of such a remedy.

**The European Sugar Crop.**—While we are struggling to reach a satisfactory development of the manufacture of beet-sugar, and are writing, talking, and disputing on the possibility of growing beets and producing sugar from them, in Europe the manufacture reached the enormous amount of 1,550,000 tons in 1868, and the crop of the present year is estimated to exceed it by 60,000 tons. In Germany the beet-root tax was paid in 1878 upon 4,622,900 tons of roots, and the average yield of sugar from these was 12¼ per cent. In France also the manufacture is taxed, so that we should possess an advantage in our favor in the freedom from this charge. Why it should be a question with us, whether or not we can grow beets, with our climate so similar to that of Central Europe where beet culture flourishes, seems an absurdity. The only difficulty appears to be that we do not set about it. The past season the writer has grown, in New Jersey, an acre of Vilmorin's Improved Sugar-Beet with success, and the roots are as fair, smooth, and sweet as could be desired, and they are found to be most excellent for the production of milk and butter.

**The Present Value of a Duchess.**—At the recent sale of the herd of the Earl of Dunmore, Duchess 114th was sold for $14,040, and Duchess 117th for $16,640. Considering the remarkable depression in business in England, and the low condition of agriculture, these prices are as good as might be expected. But then the rearing and keeping of Duchesses is not agriculture.

**Home-made Bone-dust.**—Bone-dust, as valuable as that sold for $35 to $55 per ton may be made at home, through the winter, with little trouble, if a stock of bones can be procured. Pack the bones in layers in boxes or barrels, with a quantity of unleached wood ashes, and keep the whole moist, but not wet. After a few months, break up the bones into fine powder. This will possess every fertilizing quality of the best bone-dust.

**The Trade in Peanuts.**—The peanut is an American institution which flourishes in all places, high and low, and among all classes of people. In the highest halls of legislation, and the poorest haunts of the lowest of the populace, the peanut is a cherished delicacy, and the business of growing and distributing it has become so important that it has been found necessary to reduce it to rules and standards. Hereafter, by agreement of the dealers in this edible, the former standard measure, the bushel, is abolished, and in place of it, the bag of 100 pounds is to be the regular package, and the price is fixed at so much per pound. So that the peanut, at once lowly and aristocratic in its uses, takes a foremost place in the reform in weights and measures which promises to abolish the present uncertain and incongruous bushels with the pecks, gallons, and other fractional parts of it, and give us in place of it the pound as a unit, and the 100 will become the usual business quantity by which articles heretofore measured by the bushel will be bought and sold.

**German Agriculture.**—Official statistics give the following figures representing the condition of German Agriculture at the end of last year: Acres of arable land 55,000,000, meadow 25,000,000, gardens 580,000, vineyards 320,000 acres. Twenty-six per cent of the whole country is in forests, 7 per cent is occupied by roads, lakes, rivers, and waste land, or about ⅓ not tillable.

**American Jerseys.**—Prof. G. E. Morrow, of the Illinois Industrial University, has just returned from a trip to Europe, and, among other places he visited, were the Channel Islands. He thinks the Jerseys and Guernseys in their native homes are no better than those which have been in our country for some time, and nothing is to be gained, aside from numbers, by further importations; besides, the acclimated animals are better adapted to our climate, ways, etc., than new comers could be.

**Advance in Dairy Goods.**—The advance in dairy products during the month of September is something phenomenal. A rise of 100 per cent in the price of cheese in 20 days is without precedent. From 5 to 10 cts. a pound is an advance that is cheering to the dairymen who have for a long time battled with misfortune. Butter has advanced 25 per cent, and will probably follow cheese to a still higher advance. Now let dairymen take warning from the past, and avoid saddling the market with poor qualities. Let them encourage consumption at home by making only the best possible cheese, and consulting the tastes and whims even of the home markets. There is a vast field to be occupied, and millions of pounds of cheese will yearly be eaten by Americans if the quality is only made attractive, as it should be.

**Weeding Out.**—The season is drawing to a close, and any farmer that has had a poor cow in his herd through the summer, should decide to not have her another year, and forthwith begin to fatten her for beef. There may be sheep in the flock that do not pay their way, and should also be "weeded out." The poor stock should never be bred from, as "like begets like," and it is only perpetuating the poor in the place of the good. Cast out all inferior animals; and with this rule rigidly followed there will be great improvement in farm stock.

**Wheat in Corn.**—The common western practice of seeding corn fields to wheat, which is made so easy, now that one-horse drills are in use, is one that offers stronger evidence of the advantage of clean culture than a world of talking or writing could do. A corn field infested with weeds cannot thus be sown until it is plowed, which would be very late, while clean fields have been sown nearly two months before the corn has been cut.

**Heavy Fleeces.**—The gradual improvement of the American Merino has resulted in a greater addition to the value of a wool-bearing animal than has been reached in any other country, or perhaps in any other case. The weight of wool in proportion to weight of carcass has been doubled, and fleeces of 34 or 35 lbs. are not infrequent. Three rams in Vermont the past season sheared 31, 35, and 37 lbs. respectively, and although this is so far unprecedented, no one can tell to what greater weights of fleece the skillful breeders of Vermont may arrive.

**New Grades of Wheat.**—The Grain Committee of the N. Y. Produce Exchange have established new grades for wheat which have already gone into effect. Among others are the following: Extra winter wheat to be bright, sound, dry, plump, and well cleaned. No. 1 to be sound, dry, and reasonably clean. Nos. 2 and 3 to be second, and unfit to grade higher. Amber and red winter wheats are similarly graded. No. 1 North-west spring wheat to be sound, well cleaned, and weighing 58½ lbs. to the bushel. No. 2 to be sound, reasonably clean, and 56½ lbs. to the bushel. No. 3 to weigh not less than 53½ lbs. to the bushel. These grades are grown in the North-west. Nos. 1, 2, and 3 spring wheats, are similarly graded. "Steamer spring wheat" is slightly soft or damp, and of an inferior quality, and grades as above with the word "steamer" prefixed to each number.

**Dominique-Leghorns.**—The following opinion of the editor of the "Poultry World" may be submitted to those correspondents who have objected to our recent remark that we knew of no *breed* of fowls called Dominique-Leghorns: "False Feathers.—J. D. C., Scranton, Penn., inquires: 'Do White Leghorn eggs ever produce Speckled or Dominique chicks?'—We never knew a strain of White Leghorns that would not, rarely—say in one case in five hundred, or a thousand, if the former estimate offends any 'Leghorn man'—throw a chicken with a *few* black feathers. Hence a thoroughly Speckled or Dominique colored fowl may not be an impossibility. But such a manifestation would be exceedingly improbable. We never have seen one among our own White Leghorns, though we have raised great numbers in all, sometimes several hundred in a season. Unless *very* positive that there had been no *crossing* with another breed, we should be more inclined to believe that a Dominique-Leghorn was the result of a mixture of other blood, than that it was a freak or reversion. At the same time we fully admit that it may be a freak, for very marked 'sports,' 'variations,' or whatever they may be called, do occasionally occur with every animal, wild and domestic."—If we are wrong we err in good company. In the desire to multiply varieties for profit or notoriety, many crosses are made which can not be dignified by the name of *breed*.

**Muck.**—A muck bed has been called a gold mine by some persons who have had a good one on their farms and have used it properly. If not a gold mine, it is at least a source of much valuable fertilizing material, and of one of the very best absorbents for the liquid manure, which in most stables and barn-yards goes to waste. Muck should be drawn out and left in a pile near the bed to dry, after which it can be taken to the stable. The manure decomposes the muck, and the muck holds the soluble matter of the manure—a mutual benefit.

**Why are Potatoes Hilled Up.**—"Oregon." Potatoes are hilled up to prevent them from growing out of the ground, as some varieties have a strong habit of doing. Earthing up also tends to mellow the soil and to encourage the stem to throw out more roots.

**Potatoes for Fattening Hogs.**—When fed alone potatoes do not give good returns in pork, because they are not rich enough in alhuminoids—the elements which are necessary for the formation of flesh—lean meat, or muscle. The conclusion to be drawn from the various experiments in feeding swine, is, that the ratio between the carbo-hydrates and alhuminoids, the fat-forming elements, and the muscle-producing food should be as 8 to 1. Potatoes stand about 10½ to 1, the fat-forming material—the starch—being too abundant for the nitrogenous portion. Peas have the alhuminoids in excess, the ratio being about 2½ to 1, and are therefore well fitted to mix with the potatoes, to bring the food to the right standard. If one bushel of peas is added to a bushel of potatoes, it makes the ratio 10½ plus 2½, or 13 to 2, or 6½ to 1. The carbo-hydrates are still lacking, and by adding another bushel of corn, the ratio stands 7.8 to 1, which is about right. The peas ought to be boiled with the potatoes, when a mixture is obtained easily digested by the swine, and equal to the best hard corn in fattening properties. The price of potatoes and peas, and corn, will determine which is the cheaper of these two foods.

**Give the Pigs a Rubbing Post.**—It is as natural for a pig to rub as it is to eat; hence we may suppose that it is necessary. A pig that is being fed all it can eat, and is confined in a close pen, needs to have its skin rubbed, and if a good place is fixed for the rubbing, so much the more comfort for the pig, and better health, and the pork *may* be improved thereby.

**Exercise for Fowls.**—A novel way of furnishing hens, that are confined in a small space, with an abundance of exercise, is recommended by an exchange. A piece of meat is suspended by a string just so high that the fowls are obliged to make a good jump to reach it. We suppose other kinds of food could be thus placed, and no hen would be without the incentive to take the necessary exercise while eating her daily food.

**English Cattle Shows.**—The "N. Y. Evening Post" has a correspondent, an operative in a factory in Manchester, Eng., who, over the signature of "A British Workman," manages to get in more sense to the square inch than is usually found in such writings. He thus gives his views of the recent County Cattle Show. He says: "Immense sums of money were given in prizes, and immense crowds of people congregated daily to see * * *. But a few of us have been rather struck at the apathy exhibited in connection with the apparant favoritism exercised in the judging of cattle, etc. This immense favoritism, together with the competions of people who have nothing else to do with their money and time but train and feed animals which they own to the very topmost pitch of perfection, must make an ordinary competitor think it only a waste of time, money, and patience to enter the lists at all. As an instance of this, it is worthy of notice that the President of the Society, the Earl of Ellesmere (quite a youth in appearance), takes first, second, and third prizes in every class of cattle he exhibits. The Duke of Westminster, the wealthiest aristocrat in the world, also takes first and minor prizes in almost everything he exhibits. Of course, all this makes Manchester working-men wonder why working farmers have the courage to face the family influence, the full purse, and the flunkeyish favoritism with which such specimens of our nobility are blessed."

**What Farm Products We Sell Abroad.**—The recently issued report from the United States Bureau of Statistics, gives the following interesting summary of our exports for the year ending June 30, 1879:

| | | | |
|---|---|---|---|
| Flour, Wheat and other grains | $208,615,051 | Cheese | $12,579,968 |
| Cotton | 161,196,178 | Horned Cattle | 8,379,200 |
| Bacon and Hams | 51,074,433 | Preserved Meats | 7,311,408 |
| Tobacco | 25,157,364 | Butter | 5,421,205 |
| Lard | 22,856,673 | Fresh Beef | 4,833,080 |
| Total | | | $507,414,560 |

Considering the $74,031,106 of "hog products" as resulting from grain feeding, and the Beef and Dairy products as belonging to pasturage, we have the exports of

| | |
|---|---|
| Grain and Grain Products | $282,546,157 |
| Cotton | 161,196,178 |
| Pasture Products | 38,524,861 |
| Tobacco | 25,157,365 |

**That "Perfect Milk-Pail,"** described last month, page 427, grows in our estimation the more we consider its utility. The process of milking, as ordinarily practised, is anything but cleanly. The dandruff, the fine dust, the dried particles of manure or mud, constantly falling into the broad, open milk pail, is not pleasant to think of. The absorption of odors from the stall or barn-yard, where cows are usually milked, and from other sources, is enough to greatly deteriorate nine-tenths of all the butter produced. These troubles are largely mitigated in the new milk-pail, while its mechanical convenience is of no little importance. All dairymen would like it.

**The Winchester Repeating Arms Co.**—The large windows of this Company's store, No. 245 Broadway, have almost always a crowd in front of them, for besides making a handsome show of their wares, they have a sectional specimen of one of their rifles. This is a rifle cut in halves for its entire length and exposing the ingenious but simple machinery to which the effectiveness of their weapons is due, and gratifies that general Yankee curiosity to know how things are done. That the arms sent out by this Company maintain their high reputation for accuracy, effectiveness, and good workmanship, is shown by the great number of cases leaving their store directed to all parts of the country.

**New Coleuses.**—Within the last two years a number of new and very striking varieties of Coleuses have been produced, and quite unlike any that have preceded them. Henry Dreer, of Philadelphia, and H. W. Hales, Ridgewood, N. J., have both sent us specimens, strikingly beautiful and novel. When these come into the market, they can not fail to be popular. Should they not hold their markings in the garden, their brilliant colors will make them valuable for greenhouse decoration.

**Painting Buildings.**—The cool weather of late autumn is very favorable for the proper drying of paint; it forming a harder and more durable coat. Flies and other small insects, a serious annoyance in warm weather, by adhering to and disfiguring the paint, are avoided.

**Bermuda Grass—No Seed.**—"X. C. N.," Archer, Fla. Many other applications besides yours, have been made for the seed of Bermuda Grass, and we have stated several times that none could be had. The plant in this country, at least, bears no seed. We have examined hundreds of specimens during the last 20 years, and have not been able to find even an immature seed. It is sometimes the case that plants so abundantly provided with other means of multiplication do not bear seeds. Horse-radish—every bit of the root of which will grow—is another example. It flowers, but the seed is unknown. Our statement that Bermuda Grass did not bear seed has been contradicted, but when we have asked for specimens, we have invariably received Crab-grass (*Panicum sanguinale*), which, though like the other in general appearance, belongs to a very different tribe of grasses, and, moreover, is an annual. Bermuda Grass is so wide-spread, being found in every warm country—including Australia—that its original home is not known. It no doubt bears seed somewhere, else its wide distribution could hardly have been effected—but where?

**The Investigation of Hog Cholera.**—The Commission appointed in accordance with the resolution of Congress to investigate the diseases of domestic cattle, have concluded their labors, and have reported to the Commissioner of Agriculture. Each examiner has made a separate report, but the tendency of all is to show that the disease in swine, known as Hog Cholera, is one of the blood, caused by the presence in it, of extremely small vegetable growths, known as bacteria, by which the vital fluid is disorganized, and made incapable of supporting life. The blood thus poisoned, infects the tissues, which become inflamed, gangrened and decomposed, when death ensues. Rabbits and sheep may be subjected to the disease by inoculation, and infection is carried by the same means, to other swine, with great apidity. Unfortunately no decision has been arrived at, nor any suggestions made as to means of prevention, and cure is thought to be impossible. The Report is a lengthy one, filling a volume of upwards of 300 pages.

**The Dairyman's Illustrated Almanac** proved a success last year, and we are informed by Messrs. H. K. & F. B. Thurber & Co. that it will be continued this year. It is likely to become a permanent institution. Its appearance will be announced at a later date.

## Catalogues Received.

### NURSERYMEN.

J. W. ADAMS, Springfield, Mass.—A wholesale list of Brightwood Nurseries for the coming fall and spring.

CHAS. BLACK & BRO., Hightstown, N. J.—A general stock of fruit and ornamental trees and plants; offers spring-budded peach trees.

GEO. W. CAMPBELL, Delaware, Ohio.—Besides a very full list of grape-vines, offers a general stock, including greenhouse plants.

JOHN S. COLLINS, Moorestown, N. J., sends an illustrated catalogue of small fruits of all kinds; he offers fruit and ornamental trees and Jersey Red Hogs besides.

D. E. HOXIE, Northampton, Mass., at the Hillside Nursery, has a general stock of small fruits.

R. S. JOHNSON, Stockley, Del., makes a specialty of peaches, including June-budded trees, and offers other fruits, large and small.

WM. S. LITTLE, Rochester, N. Y.—A general stock of fruit trees of all kinds, and Evergreen and other ornamental trees and shrubs at trade rates.

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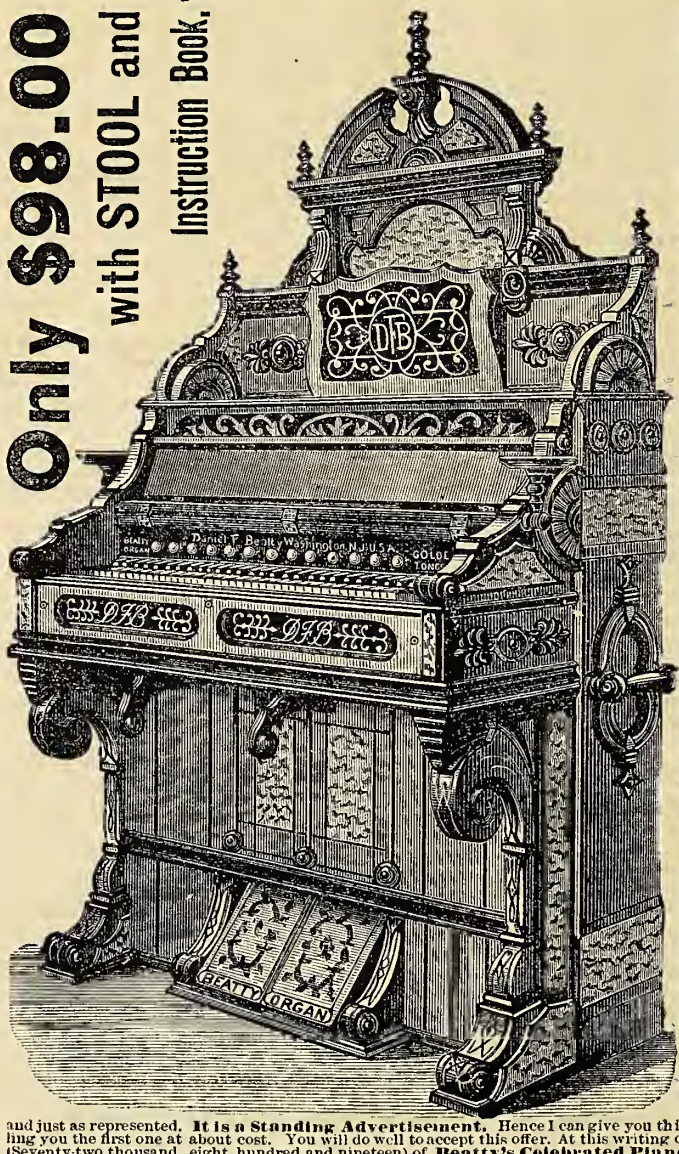


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But Art has not been forgotten. There are two fine portraits of Bayard Taylor—one engraved by Cole, from the best photograph, and the other a reproduction by Juengling, of O'Donovan's bronze bass-relief. These portraits accompany a discriminating critique of Taylor, by Stedman. Clarence Cook has a paper on "Morris Moore's Old Masters," with a reproduction, by Cole, of Raphael's "Apollo and Marsyas." The original of this celebrated picture has been exceedingly admired in Rome, and many are now urging its purchase for America. There are Poems, Stories and Sketches; "The French Quarter of New York"; "Extracts from the Journal of Henry J. Raymond," with interesting reminiscences of Daniel Webster; a beautiful story, by Boyesen; an ingenious story, "A Sigh"; the fourth part of "Confidence," by Henry James, Jr., begun in August; and the first part of

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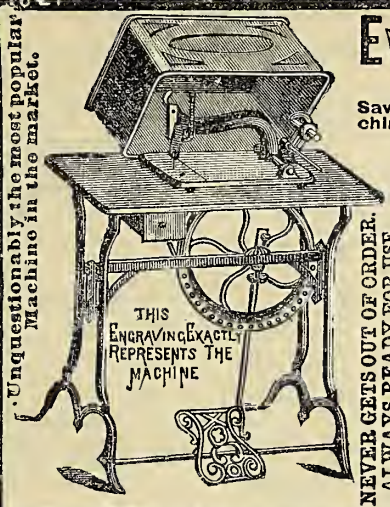


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Lands kept constantly and freshly before the people by advertising will often attract attention from better places.

The colonists of early days made their way westwardly by wagons, but principally by the Ohio River, and the old civilization developed contiguous to the water courses. Thus there are many old communities having improvements, churches, schools, societies, regular mails, newspapers, and many other blessings of good society in overlooked localities, in which railroad enterprise must soon brighten up affairs by prompt arrivals and speedy action. Of these places, little is ever heard, but being sparsely settled and affording many fine opportunities, the development is certain, however slow, from lack of advertisement. There is much of this condition of affairs along the rivers Mississippi, Ohio, Illinois, and those of Arkansas and Missouri. The surprisingly low rates of immigration by boats will have some effect on settling these districts.

The Eastern part of Missouri is a notable example of overlooked capacity for wealth. Settled many years ago, its people, by having a fine climate and generous soils, with excellent means of reaching good markets, realize at all times the best prices for products, and to this day almost every County is free from bonded debt. Many mines of iron, lead, stone, sand, clay, and the wealth of timber, produced such demands for supplies that the home markets were the best, though prices could be obtained for their products in other markets superior to those of many places. Since the improvement of the Mississippi River, and such immense quantities of timber have been taken down the rivers of Arkansas and Southern Missouri to supply European markets, the old settlements there have received increased wealth and double benefit by opening up new farming districts. The rivers are likely to assume greater importance in immigration and traffic.

So many people are anxious to have homes of their own, even under the difficulties of unknown climates, soils, distances, and other obstacles, that it is plain to all that we are on the verge of a great rise in the value of real estate. Foreign immigration will soon be overwhelming, and the owner of the soil will be the Lord of creation. Of course, the central lands being near the masses of people engaged in mines and manufactures, they will increase in value more rapidly, and thence onward for all time accumulate greater riches. Every citizen should seek a home for his family.

The British and Canadian Governments may advertise, and Lord Beaconsfield may speak words of policy however baseless, in fact, and they may donate patches of inferior lands in an inhospitable climate, and a few pet cows, sheep, and pigs, to induce people to settle in the Dominion, but it will be in vain. The British policy of colonization may take the phase of donation and the Russian that of despotism, but both are virtual banishment. The United States policy is liberal, being based on the American principle of earn what you get. It gives part of the land to secure transportation facilities, and thus makes better opportunities for the people.

So some choice lands in the middle country, situated in Southern Missouri and Arkansas were reserved more than twenty years ago, and remained unsaleable until the St. Louis Iron Mountain and Southern Railway earned the lands by completing its road so it could sell the lands. This land grant extends from the Mississippi River, just at the confluence of the Ohio River, through several Counties of Eastern Missouri into Arkansas, and makes a broad belt through that State, embracing hills, valleys, and bottom lands.

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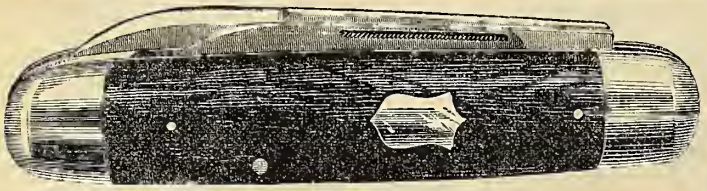
Besides the Citizens' Immigration Societies of the different Counties, information may be obtained from the Land Grant Office, by addressing W. A. KENDALL, number one Fifth Street, St. Louis, Missouri.



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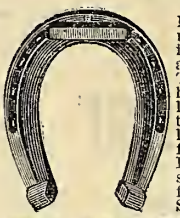

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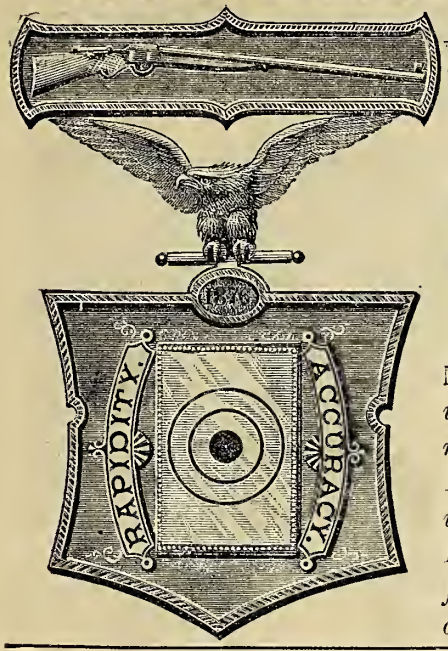

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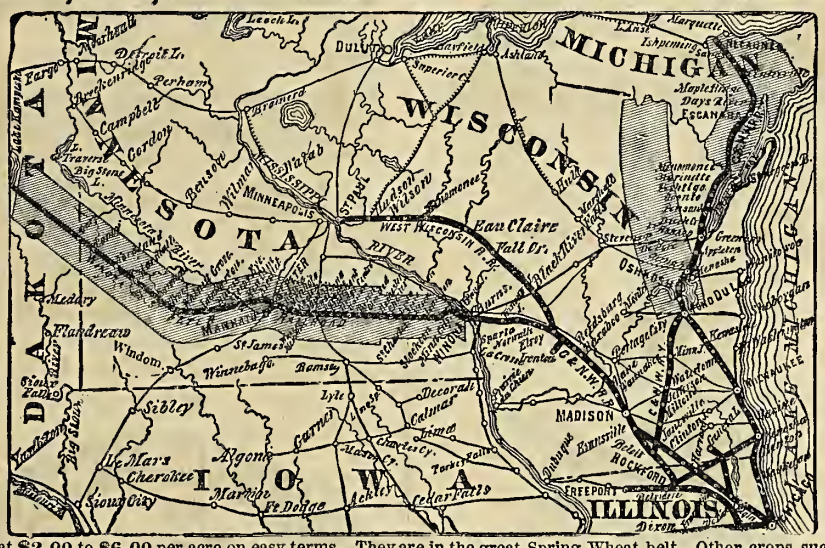


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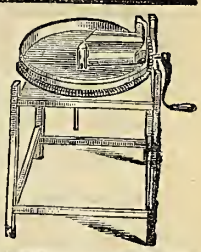

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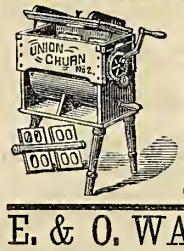


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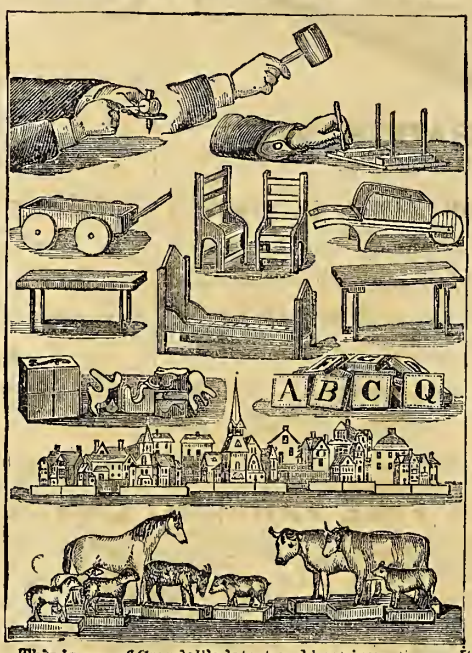


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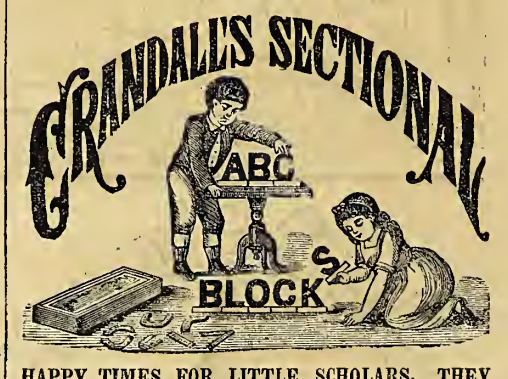


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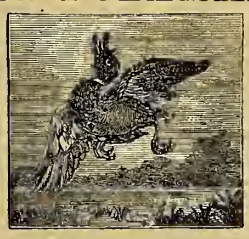

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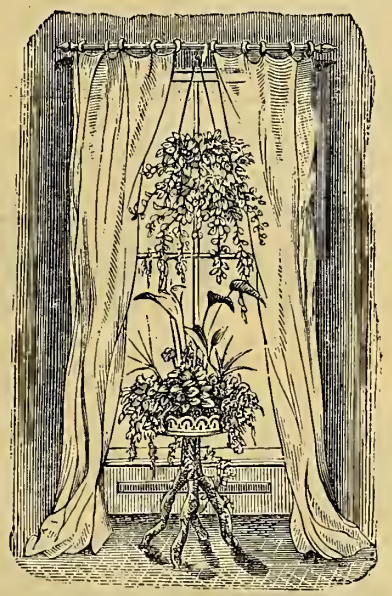

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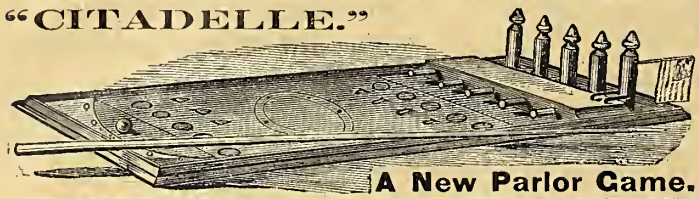

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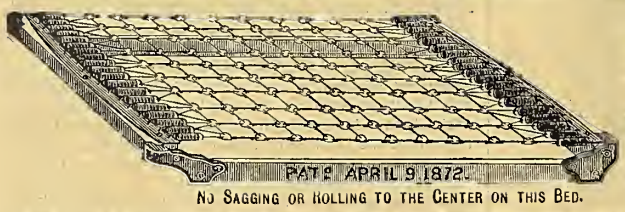


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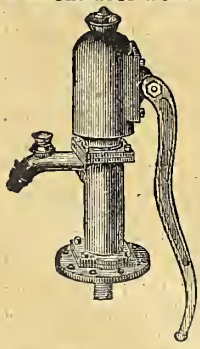

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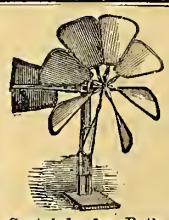

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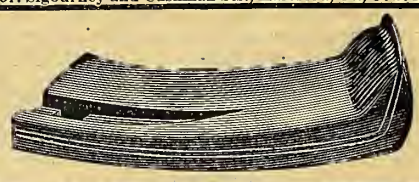

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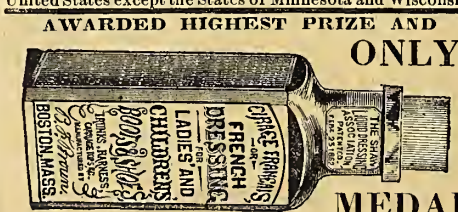


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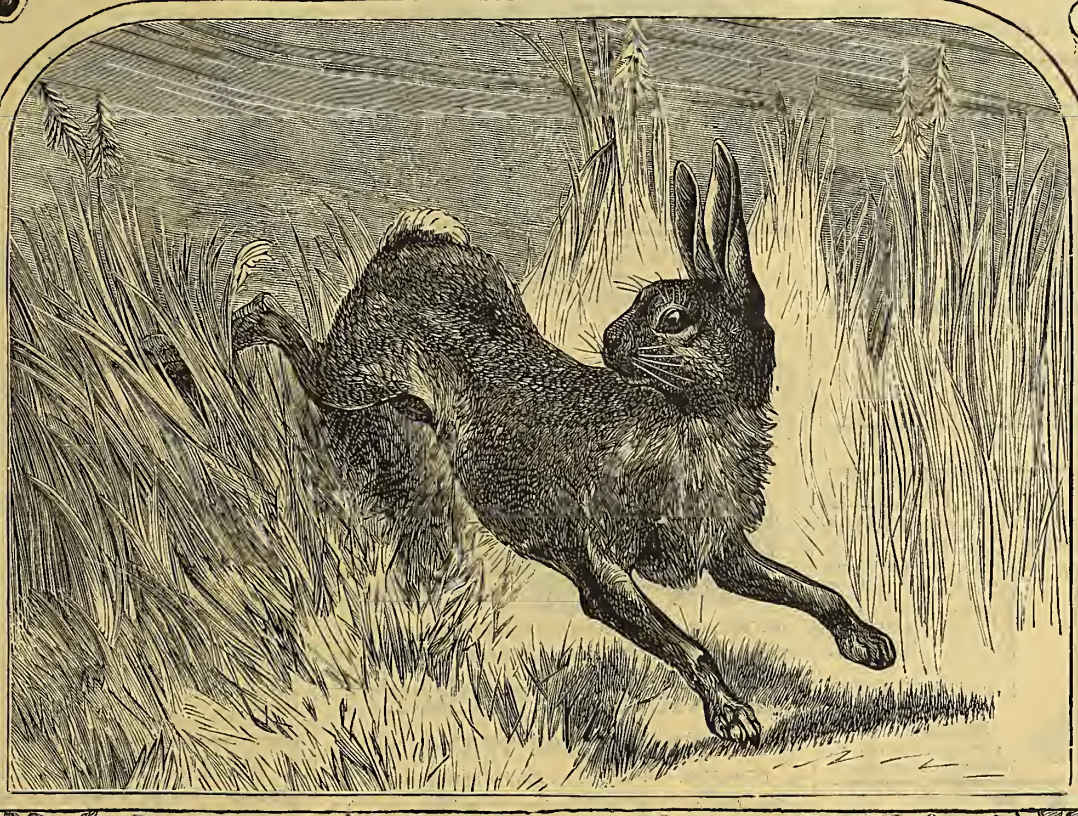

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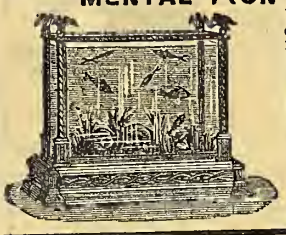

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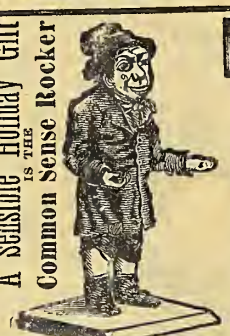

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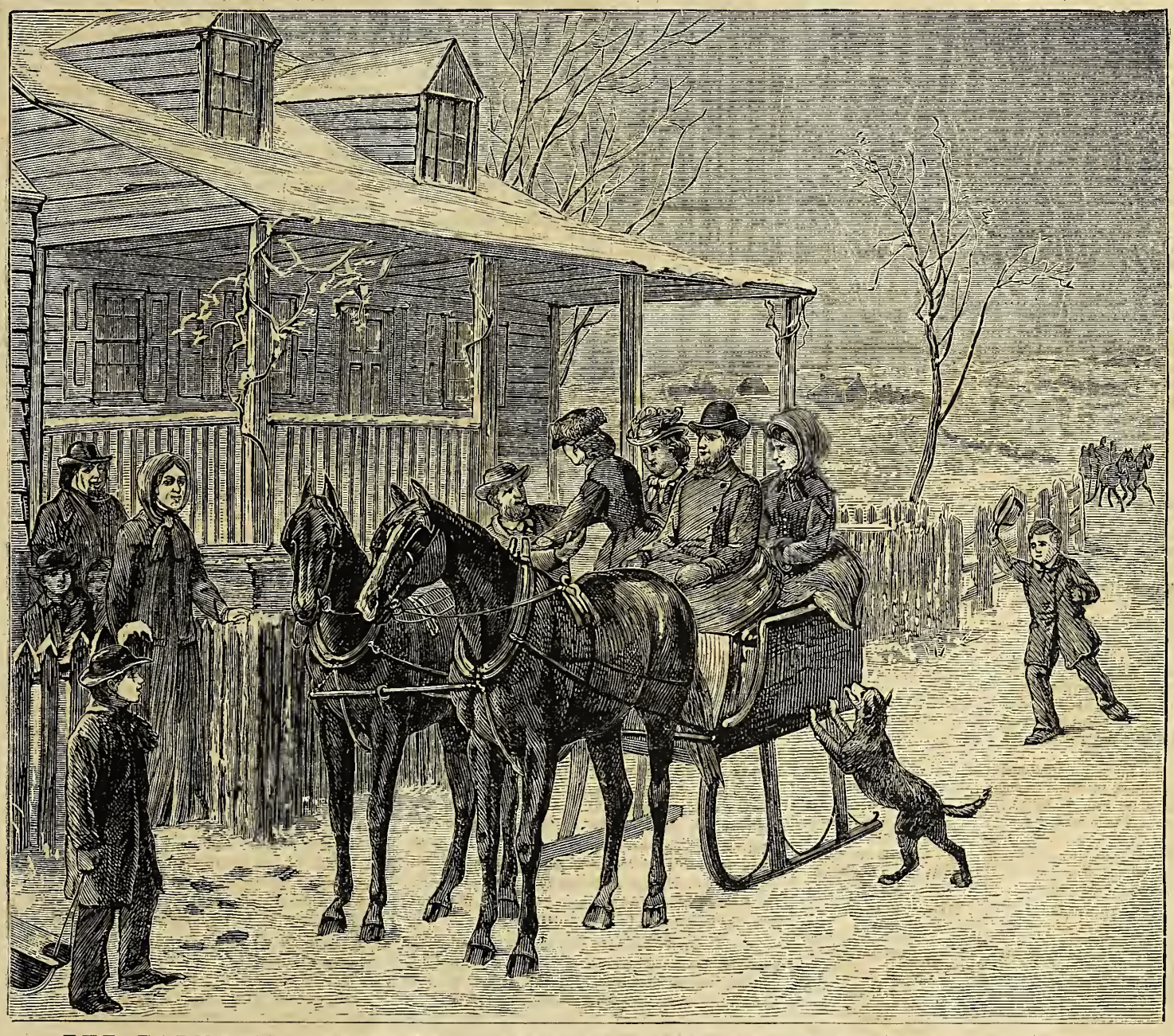

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## Calendar for December, 1879.

| Day of Month. | Day of Week. | *Boston, N. England, N. York State, Michigan, Wisconsin, Iowa, and Oregon.* Sun rises. | Sun sets. | Moon rises. | *N. Y. City, Ct., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois.* Sun rises. | Sun sets. | Moon rises. | *Washington, Maryland, Virginia, Kentucky, Missouri, and California.* Sun rises. | Sun sets. | Moon rises. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | H. M. | H. M. | H. M. | H. M. | H. M. | H. M. | H. M. | H. M. | H. M. |
| 1 | M | 7 10 | 4 29 | 6 46 | 7 5 | 4 33 | 6 32 | 7 0 | 4 39 | 6 59 |
| 2 | T | 7 11 | 4 28 | 7 49 | 7 6 | 4 33 | 7 54 | 7 1 | 4 38 | 7 59 |
| 3 | W | 7 12 | 4 28 | 8 53 | 7 7 | 4 33 | 8 57 | 7 2 | 4 38 | 9 1 |
| 4 | T | 7 13 | 4 28 | 9 59 | 7 8 | 4 33 | 10 2 | 7 3 | 4 38 | 10 5 |
| 5 | F | 7 14 | 4 28 | 11 5 | 7 9 | 4 33 | 11 7 | 7 4 | 4 38 | 11 9 |
| 6 | S | 7 15 | 4 27 | morn | 7 10 | 4 33 | morn | 7 5 | 4 38 | morn |
| 7 | S | 7 16 | 4 27 | 0 14 | 7 11 | 4 33 | 0 14 | 7 6 | 4 38 | 0 14 |
| 8 | M | 7 17 | 4 27 | 1 24 | 7 12 | 4 33 | 1 23 | 7 7 | 4 38 | 1 22 |
| 9 | T | 7 18 | 4 27 | 2 38 | 7 13 | 4 33 | 2 36 | 7 7 | 4 38 | 2 33 |
| 10 | W | 7 19 | 4 27 | 3 55 | 7 14 | 4 33 | 3 51 | 7 8 | 4 38 | 3 48 |
| 11 | T | 7 20 | 4 27 | 5 14 | 7 14 | 4 33 | 5 9 | 7 9 | 4 38 | 5 4 |
| 12 | F | 7 20 | 4 28 | sets | 7 15 | 4 33 | sets | 7 10 | 4 38 | sets |
| 13 | S | 7 21 | 4 28 | 4 39 | 7 16 | 4 33 | 4 45 | 7 10 | 4 38 | 4 53 |
| 14 | S | 7 22 | 4 28 | 5'53 | 7 17 | 4 33 | 5 58 | 7 11 | 4 38 | 6 5 |
| 15 | M | 7 23 | 4 28 | 7 9 | 7 17 | 4 34 | 7 14 | 7 12 | 4 39 | 7 20 |
| 16 | T | 7 24 | 4 29 | 8 24 | 7 18 | 4 34 | 8 28 | 7 13 | 4 39 | 8 32 |
| 17 | W | 7 24 | 4 29 | 9 36 | 7 19 | 4 34 | 9 38 | 7 13 | 4 40 | 9 41 |
| 18 | T | 7 25 | 4 29 | 10 43 | 7 19 | 4 35 | 10 44 | 7 14 | 4 40 | 10 45 |
| 19 | F | 7 25 | 4 30 | 11 48 | 7 20 | 4 35 | 11 47 | 7 14 | 4 40 | 11 48 |
| 20 | S | 7 26 | 4 30 | morn | 7 20 | 4 35 | morn | 7 15 | 4 41 | morn |
| 21 | S | 7 26 | 4 30 | 0 51 | 7 21 | 4 36 | 0 49 | 7 15 | 4 41 | 0 48 |
| 22 | M | 7 27 | 4 31 | 1 53 | 7 21 | 4 36 | 1 50 | 7 16 | 4 42 | 1 47 |
| 23 | T | 7 27 | 4 32 | 2 55 | 7 22 | 4 37 | 2 51 | 7 16 | 4 42 | 2 48 |
| 24 | W | 7 28 | 4 32 | 3 56 | 7 22 | 4 38 | 3 51 | 7 17 | 4 43 | 3 47 |
| 25 | T | 7 28 | 4 33 | 4 56 | 7 23 | 4 38 | 4 51 | 7 17 | 4 44 | 4 45 |
| 26 | F | 7 29 | 4 33 | 5 53 | 7 23 | 4 39 | 5 47 | 7 18 | 4 44 | 6 41 |
| 27 | S | 7 29 | 4 34 | rises | 7 23 | 4 39 | rises | 7 18 | 4 45 | rises |
| 28 | S | 7 29 | 4 35 | 4 39 | 7 24 | 4 40 | 4 45 | 7 18 | 4 46 | 4 51 |
| 29 | M | 7 29 | 4 36 | 5 41 | 7 24 | 4 41 | 5 46 | 7 19 | 4 46 | 5 52 |
| 30 | T | 7 30 | 4 36 | 6 46 | 7 24 | 4 42 | 6 50 | 7 19 | 4 47 | 6 54 |
| 31 | W | 7 30 | 4 37 | 7 51 | 7 24 | 4 43 | 7 55 | 7 19 | 4 48 | 7 53 |

PHASES OF THE MOON.

| MOON. | BOSTON. | N. YORK. | WASH'N. | CHA'STON | CHICAGO. |
|---|---|---|---|---|---|
| | D. H. M. | H. M. | H. M. | H. M. | H. M. |
| 3d Quart. | 6 2 59 ev. | 2 47 ev. | 2 35 ev. | 2 23 ev. | 1 58 ev. |
| New M'n | 13 6 20 mo. | 6 8 mo. | 5 56 mo | 5 45 mo. | 5 15 mo. |
| 1st Quart | 20 6 31 mo. | 6 19 mo. | 6 7 mo | 5 55 mo. | 5 25 mo. |
| Full M'n | 28 11 31 mo. | 11 19 mo. | 11 7 mo. | 10 55 mo. | 10 25 mo. |


# AMERICAN AGRICULTURIST.

NEW YORK, DECEMBER, 1879.


## Hints for the Work of the Month.

[*The Hints and Suggestions in these columns are never copied from previous years, but are freshly prepared for every month, from the latest experience and observations, by practical men in each department.*]

*The Close of the Year* is usually an interesting period to the farmer, but the end of the present one is especially so. For some years past, there has not been much to encourage farmers in their work, except perhaps, the general feeling, that "bad times" could not last forever, and at length a change must come. After many seasons of patient waiting, the looked for change has arrived, and as we go through our barns, and granaries, and consult our accounts, we may find that our work this present year, has repaid us for many past poor ones.—There are exceptions here, as in all other business. Until recently, dairying was discouraging indeed, but with the advance in prices to more than double the rates current only three months ago, cheerfulness has succeeded to despondency.

*The Promise for the next Year* is also encouraging; a greatly increased breadth of wheat has been sown, and the weather has been favorable for its growth. Indeed, in some cases, the wheat and rye are too vigorous, and if warm weather occurs with rains this month, the growth may be too luxuriant.

*Pasturing Fall Grain.*—If the fall grain is in danger of jointing, it should be pastured without delay. It is often a great help to the wheat or rye, to turn sheep or calves upon it. These eat down luxuriant growth, and tread the soil firmly about the roots. If no other stock are available for this purpose, cows may be let into winter grain fields.

*Top-Dressing.*—If manure is needed for winter grain, now is the time to apply it. It may be used fresh and coarse, without losing much in value. Even straw spread over the wheat is of great benefit. Mulching is a protection against extremes of both heat and cold, and preserves the crop during sudden and severe changes of the weather.

*Surface Drains.*—If not already made, ample drains should be provided to free the fields from surface water. Drains that have been plowed out, may need clearing in places with spade or hoe, that the water may pass off readily. In laying out open drains, the slopes should be so made, that the water will not flow off too rapidly, with a gentle inclination only; in this case much of the water will soak into the soil, and will not wash away either the soil, or any manure that is on the slopes.

*The Granary and Cribs.*—A large quantity of grain is stored, awaiting higher prices. This may be wise or otherwise. One thing to be considered, is, the loss by shrinkage, and wastes in the granary and crib. Wheat in the granary is subject to injury by the Weevil and the Grain Moth. This damage may be prevented to some extent, by shifting the grain, and running it through the fanning mill. Corn cribs are almost always infested by rats and mice. A vermin-proof crib may be made by covering the posts and lower corners with tin or sheet iron, which may be painted for preservation. The loss by these causes will average 10 per cent, and often more, of the value of the grain, but it may be, in part, or wholly, avoided, by care and precaution.

*Fodder Stacks.*—As a precaution against rain, and melting snow, the tops of fodder stacks may be covered with a few sheaves of long straw, tightly bound about the top of the stack, or to a stake thrust down into its center for a few feet.

*Ice Ponds.*—Every house and dairy, however small the latter may be, should have a supply of ice. If there is no pond, a small stream may be dammed and the water backed up, to make a pond. A considerable supply may be procured by making of boards a large box a foot deep, similar to a mortar bed, and claying the joints. If this is filled with water, in cold weather, an exposure of two or three days will be sufficient to make a cake of ice, which may be put up in this shape with little trouble.

*A Large Block of Ice* has been made *in* the house itself, by making a frame of boards in the center, and gradually filling it up, so that the water freezes solidly each night. Additions in hight are made to the frame as required, and the sawdust is packed around it. In this way a solid block of ice, 10 feet each way, weighing over 30 tons, has been made during the winter by means of a hose from a pump. Such a block of ice wastes very little in the summer.

*Potatoes and Roots.*—Pits and cellars should be examined as to the condition of the contents. If too warm, ample ventilation must be given at once. A freezing temperature will not injure roots or potatoes if they are exposed to it but a short time. If they are found too warm in the cellar, the heaps should be turned over and well aired. The best temperature is one just above the freezing point.

*The Leisure of Winter.*—While there is always something to do about a farm, the winter season offers considerable leisure for the farmer. For the best use of this time, nothing can be more profitable than to procure and use a small select library of books of an instructive kind. To read for amusement only, is not recommended, because information of a valuable kind can be procured in such a form as to be interesting and agreeable.

*Management of Manure.*—The barn-yard is the field for winter work. Much may be done here by skillful management. Manure, so long as it is frozen, remains unchanged, and the preparation of the manure in the best manner for use in the spring makes no progress. Make a central heap in the yard, and by means of a few planks and a wheelbarrow move the manure from the stable each day to this heap. If the heap is built up square, and made 4 feet high, it will keep warm in the coldest weather, and while warm it will ferment and rot.

*Turning Manure.*—A large heap may be turned by beginning at each end and throwing off the manure to a distance of about 3 feet; gradually move it from each end, until there are two heaps. After the manure has remained in this way for a few weeks, replace the two heaps, making one heap again, thus turning the manure very thoroughly twice. In turning, the manure should be shaken thoroughly apart, and all the lumps broken. Two loads of manure so treated do as much immediate good, as will three of coarse lumpy stuff.

*Swamp Muck.*—Where there is a supply of swamp muck, as much of it as convenient may be usefully spread over the yards, pens, and stables, as an ab-

sorbent. If swamp muck contains 2 per cent of nitrogen, some has been found to contain even more, a ton is worth $10 for this ingredient alone at its market price. No ordinary stable manure is so rich in nitrogen as that. A muck bed may well be said to be invaluable, for one acre 3 feet deep furnishes 2,500 tons, having a value, at the above figures, equal to twenty-five thousand dollars.

*How Swamp Muck may be Used.*—Muck dug in the winter will freeze and fall into a fine powder. If put in heaps, with lime or ashes, it will heat and ferment, and will not freeze, but will be changed to a loose texture, and can then be handled with ease. In this condition it is best fitted for use in composts as an absorbent, or to put on the land.

*Compost Heaps.*—If there is not sufficient rain to keep these moist, water should be supplied, even if it has to be hauled and poured on them. Decomposition is arrested when the heap becomes dry. A few barrels of water from the well will soon start up heat and decomposition in a dry pile of compost.

*Materials for Composts.*—In several of the States compost heaps may be made of muck or earth for a basis; to this may be added leaves, cotton-seed, ashes, gypsum, night soil, stable manure, trash from the fields (except weeds in seed), and all the slops from the houses and cabins. A plenty of water should be added. By turning the heap as previously described, the compost will be fine enough to use in the hill for corn or cotton. If desired, bone-dust may be added, but fine artificial fertilizers will be better if used by themselves.

*Horses.*—No animal should be permitted to fall off in condition at this season. It is difficult to restore an animal when all the food and vitality are required to resist cold and the hardships of a stormy winter. Horses that are not at work still require good and sufficient food, and warm shelter. Exposure to a storm may throw the whole system out of order and do mischief that months of effort may not repair. Prevention is the better plan. Good hay, with a few ears of corn, and an occasional warm bran mash, will keep horses in condition, but good, daily grooming must never be forgotten.

*The Dairy.*—Dairy animals are worthy of the best care. A good cow returns her value every year in milk and butter, and in some localities the manure almost, if not quite, pays for her feed. The richer the feed, the better the manure. At any rate, a cow is one of the most prodnctive of our farm animals, and the better she is, the more profitable. Only good cows should be kept; as a barren tree would be rooted out of an orchard, so should a poor cow be discarded from the dairy. Every dairyman or farmer may improve his herd.

*Thoroughbred Animals* are not for the working farmer; they are not so profitable as grades. There are thousands of grade cows which will surpass an average thoroughbred in yield of milk and butter. The farmer's plan is, to procure and keep, or use, the best bull he can find, raise the heifer calves, and select the best of these to breed from pure-bred males again. But only a strictly pure-bred bull, of the best kind, and from an excellent cow, should be used. A vast improvement must be made in our dairy cows before the most profit can be made from them. The same is true of sheep and pigs.

*Sheep.*—Let no sheep go into winter qnarters infested with ticks. If no other method is possible, go over the sheep one by one, on a warm day, and kill every tick with a pair of scissors. If a boy is given a cent a dozen for all the ticks he can find on a score of sheep, he will earn a dollar or two in a day from almost any farmer's flock. If ticks are killed, the trouble and expense will be amply repaid in the better condition of the lambs by and by. Breeders are generally more careful in this respect.

*Brood Ewes* that will have early lambs, are better in a yard and shed by themselves, as they need a more generous feeding than those coming in later. Rams and wethers should never be kept with ewes; they are rough-mannered, and butt the weaker sheep too much. Sheep are better off if kept in an open yard and shed than if penned up too closely.

*Fattening Sheep.*—Sheep that are being fattened for market and for the sake of manure, need to be fed with great regularity. A variation of half an hour in their foddering time makes them fretful and uneasy, and this causes loss of flesh and fat. If well littered, the manure may be left to collect in the shed until spring; the solid packing of the manure will prevent undue heating.

*Swine.*—Swine that are fattening will do better with soaked corn than with dry. Corn steeped in water for 12 hours has been found more economical to feed than when ground into meal. The animals are sooner filled, the food digests better, and, consequently, the feeding is finished more expeditiously, and feed—which is money—is saved.

*Poultry.*—Vermin are the greatest pest to fowls. They are worse in the winter than at other times, because the fowls are confined more closely, and have not opportunities to free themselves. Lice may be destroyed by whitewashing the house and roosts with lime-wash mixed with carbolic acid. Fleas may be destroyed by thoroughly greasing the roosts. Clean straw should be supplied to the nests, and glass nest-eggs provided for early layers. A glass-covered coop will be useful for an early sitting hen and a young brood of chickens.

*Sundry Matters.*—A pair of cards and a brush should be in every cow stable, and cleanliness should be carefully observed. A thorough carding and brushing will not only increase the quantity of the milk, but will add to its purity....Young calves should be freed from vermin by applying a mixture of linseed-oil and kerosene to the parts infested.... Water troughs should be emptied and turned over at night, to prevent them from being frozen up.... Tools will be safer when kept in a selected place than when lying about. Those not now in use will be much improved by soaking the wood with crude petroleum, and covering the metal parts with a coating of tallow; or what is better, the mixture of lard and rosin mentioned last month on p. 455.... If accounts have not been kept, nor any daily record of farm work, the proper books should be procured, and at the beginning of 1880 a commencement made. It is worth the trouble to know just how one stands with himself and the world.

## Orchard and Garden Work.

This month completes the circle of the year; we leave off, much as we begun, with looking forward. Every gardener, as well as every farmer, works with full faith in the return of "seed-time and harvest." These always come, but if their coming is somewhat different from the manner in which the experience of previous years have taught us to look for, we call it a remarkable or unusual season, and forgetting that the great promise has never yet failed, we are too apt to grumble if it is not fulfilled as we would have it. The autumn has indeed been an unusual, but thus far altogether a favorable one. The evils of the departure from the average season are mainly possible, and may yet be averted, while the benefits have been numerous. He must be a poor gardener who has not, in the sunny days of October and a part of November, greatly lessened the amount of work to be done at the opening of spring. The few snow flurries, and the reports of heavy snows at the north and west, remind us that the warm weather, and with it the out-door work, is now (the second week in November) well-nigh at an end, and no doubt this will be read at the cheerful fireside. The long-looked for opportunity has come. We have promised that we would look up this, and read about that, and now the promise to do these "when we had time" can be kept. There is time which may be made most precious by reading, reflecting, and planning. There is scarcely a special culture, whether of farm or garden crops, but has one or more treatises devoted to it, while general works, and those which discuss the principles which underlie all culture, are many. There are books and books, but it is rare, indeed, that at the present day a book is not worth all it costs, if not in direct teachings, at least in the suggestions it imparts and the thoughts it awakens. Books giving the thoughts and the experiences of others are most useful companions; there are other books which should be made our companions—blank books in which to record our own experiences, especially those which may be expressed in dollars and cents. A book for accounts and business memoranda is of no less value to the gardener and orchardist than to the farmer, as the details are far more numerous and burden the mind. If such a book has not heretofore been kept, make a beginning at once.

### Orchard and Nursery.

*Apples* are a short crop; and it is all the more important for those who are so fortunate as to have them, to keep them properly. The cellars, if separate from the house, should be of a temperature just above freezing, and need not be ventilated. Those under dwellings must be so constructed that the gases rising from the ripening fruit may pass away, otherwise they will rise into the rooms above and endanger the health of the inmates.

*Fences and Gates* should be kept in good order; and there is no better time for making gates and posts, etc., in the shop than during the winter.

*Cions* are better if cut before they have been exposed to hard freezing. Select the most vigorous and well ripened shoots, and tie in bundles, label, and pack in fresh sawdust, or sand, if that can not be had, and keep in the cellar.

*Animals.*—The injury done by mice, rabbits, etc., and the remedies, are fully treated under "Caring for Young Trees," page 508, of this number.

*Manures.*—The application of manure to the orchard is too often neglected. Use well rotted stable manure. It may be drawn on at any time during the winter, most easily when the ground is frozen. When spread, it should cover the whole ground, and not be heaped just about the trunks of the trees, where there are no small roots.

*Pruning* of small branches may be done at any time when the weather is pleasant. A very little time spent on young trees will bring them into good shape and determine their future form.

*Seeds* of fruit and of many ornamental trees, are best kept in damp sand, or sandy soil, and should be in a place so cool that they can not germinate.

### The Fruit Garden.

Mild days will give an opportunity to finish pruning the grape-vines, currants, etc., at the same time saving any wood that may be needed for propagation.

*Strawberries.*—Cover with a layer of straw, marsh hay, or leaves, just before the cold weather sets in.

*Raspberries.*—Cover the tender kinds with earth.

If the weather holds open, some of the work mentioned at considerable length in last month's Notes may be done now. Read the Nov. Notes.

### Kitchen and Market Garden.

*Cold Frames* need daily attention. The Lettuce, Cauliflower, Cabbages, etc., set in them should *not* grow, the great danger in winter is in having the frames too warm. They are *cold* frames, and only on the coldest days are the sashes to be kept entirely and continuously closed. When the temperature is 10° the sashes should be raised slightly, and when 30° the frames should be open.

*Celery* in trenches for the winter must not be allowed to freeze hard, though a moderate freezing does not injure it. The covering material, straw, hay, or leaves, should be at hand to put on when needed. A slight covering will answer until cold weather fairly sets in, but the winter covering should be about a foot thick. That put in the cellar in boxes, as described last month, page 453, is more likely to suffer from heat than from cold. If the temperature is too high, the celery will start to grow, and the stalks will become hollow. Keep the cellar near the freezing temperature.

*Cellars* containing roots must be kept cool. A thermometer will be found useful in a cellar where roots or fruit are kept. In either case the nearer the temperature can be kept to 34° the better. Roots for table use, if kept in a warm cellar, should be covered with earth or sand to keep from wilting.

*Parsnips.*—A portion of the crop may be left in the ground; freezing makes them tender and improves their sweetness. Dig them during a thaw.

*Salsify* is equally hardy with parsnips, and require the same treatment. Scorzonera the same.

*Horseradish* may be dug before the ground freezes, and packed in sand in the cellar. Some put a heavy covering of straw, hay, or leaves over the bed, so that it may be dug during winter.

*Seeds.*—Some seeds, like the parsnip, are not good the second year, and should not be kept over. All doubtful seeds, either as to age, name, or quality, should be thrown out. Good seed is one of the essentials to success in the garden, and now is the time to sort, label, select, and reject if necessary.

*Matters and Things.*—So long as the ground is open and not too wet for working, put in the plow or spade—according to the size of the garden.... To keep Squashes and Sweet Potatoes the temperature should not be far below 60°....In stormy days look to the tools. Often a little "tinkering" will make an old tool as good as new. See that all are cleaned, and seed sowers in working order....Make up a stock of garden conveniences, markers, dibbles, stakes, and whatever else may be needed.... Gather leaves while the snow holds off. A good gardener's pile of leaves is never too large....If there is a deposit of muck at hand, or within convenient hauling distance, lay in a stock, as described under "Farm Work"; it is quite as valuable in the gardener's field as in the farmer's.... Finally, renew your subscription to the *American Agriculturist*, and induce a neighbor, if you have one, who is not a subscriber, to join you.

## Flower Garden and Lawn.

Manure applied to the lawn and garden, should always be so well rotted, that there will be no risk of its containing the seeds of weeds.....Shrubs that are but half hardy, are best protected by sticking up evergreen boughs near them, and if necessary, tying them in place.....Herbaceous plants of doubtful hardiness, may have a good covering of leaves, sprinkling a little soil upon them, to hold them in place....If there is no snow-plow, make one. Even a hand snow-plow is a great help, but where there are long stretches to be cleared a horse-plow is a great saving of labor....Always follow the established paths with the plow, and if there are places where strangers or stupids may "cut across lots," put up fence wires....Snow often injures evergreens in two ways: it lodges in the tops and freezes there, bringing the branches out of shape by its weight; and a deep snow which covers their lower branches, may, as it settles, break them—prevent by shaking it from the trees while it is still light, and by shovelling away from the lower branches....See article on Tree Protection, on page 508, as it applies to many ornamental trees, as well as fruit trees. Moveover, when the ground is covered with snow, do not forget the birds, but provide both food and water, as they often perish from thirst.

## Greenhouse and Window Plants.

*Chrysanthemums* after they have flowered, should be cut down, and the pots put in the cellar, and have a rest, being left without water, unless there is danger of becoming "killing dry."

*Hanging Plants* are more apt than others to suffer from dryness. To water them perfectly, plunge the basket into a bucket of water, and let the earth become thoroughly soaked through. Return them to their places, after all dripping has ceased.

*Bulbs in Pots* are to be brought out of the cellar for early bloom, when the plants are well rooted.

*Ivies* are among the most attractive of room plants, and easy to manage. It will improve their condition greatly, to go over them once a week, with a sponge or soft cloth, and wash the dust from the leaves. The operation takes much less time than one would suppose, and it allows the scale insect, the worst enemy of the Ivy, to be seen on its first appearance and removed by the use of an old tooth-brush.

*The Temperature* of the room for plants to do well, should range between 70° for day time, and 55° for night. Rooms are kept too warm for both plants and human inmates. Provide some method of evaporating water in the room, to moisten the air.

*Dust.*—When sweeping is being done, the plants ought to be covered with a cloth or newspapers, to keep off the dust. Otherwise the freshness and beauty of the foliage will soon be lost. The sponging of the smooth and thick-leaved plants (see under Ivy), will add to their health and beauty.

*Watering.*—A few winters ago, a Doctor complained to us that his plants were in a bad way, they not only did not grow, but by dropping their leaves, were actually diminishing in size, in spite of the fact that he "watered them regularly every day." At his request we went to see the plants; they were at a cool window in his office, in porcelain, and other glazed, and very handsome pots, and the earth in each, was in the state of *mud*. Probably about as many plants, in rooms, are killed by excess of water, as by the lack of it. Glazed pots especially should be so drained, that all excess of water will pass off, and the potting soil should be so "open," that it will not retain water to excess. A little observation will show when a plant needs water, and it should be given, not by any rule, but according to the requirements of the plant.

## Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, from our record kept daily during the year, show at a glance the transactions *for the month ending Nov. 13th*, 1879, and for the corresponding period last year:

**1.** TRANSACTIONS AT THE NEW YORK MARKETS.

| Receipts. | Flour. | Wheat. | Corn. | Rye. | Barley. | Oats. |
|---|---|---|---|---|---|---|
| 26 d's *this* m'th | 484,000 | 10,170,000 | 4,116,000 | 557,000 | 1,193,000 | 1,212,000 |
| 28 d's *last* m'th | 561,000 | 9,104,000 | 7,043,000 | 582,000 | 497,000 | 1,146,000 |

| Sales. | Flour. | Wheat. | Corn. | Rye. | Barley. | Oats. |
|---|---|---|---|---|---|---|
| 26 d's *this* m'h | 473,000 | 26,839,000* | 6,347,000* | 395,000 | 673,000 | 1,796,000 |
| 28 d's *last* m'h | 607,000 | 21,156,000* | 10,265,000* | 859,000 | 152,000 | 2,087,000 |

* Including sales for forward delivery.

**2.** *Comparison with same period at this time last year.*

| Receipts. | Flour. | Wheat. | Corn. | Rye. | Barley. | Oats. |
|---|---|---|---|---|---|---|
| 26 days 1879 | 484,000 | 10,170,000 | 4,116,000 | 557,000 | 1,193,000 | 1,212,000 |
| 27 days 1878 | 513,000 | 5,821,000 | 3,971,000 | 567,000 | 1,079,000 | 1,217,000 |

| Sales. | Flour. | Wheat. | Corn. | Rye. | Barley. | Oats. |
|---|---|---|---|---|---|---|
| 26 days 1879 | 473,000 | 26,839,000 | 6,347,000 | 395,000 | 673,000 | 1,796,000 |
| 27 days 1878 | 521,000 | 6,413,000 | 4,812,000 | 531,000 | 826,000 | 1,473,600 |

**3.** *Exports from New York, Jan. 1, to Nov. 12.*

| | Flour. bbls. | Wheat. bush. | Corn. bush. | Rye. bush. | Barley. bush. | Oats. bush. | Peas. bush. |
|---|---|---|---|---|---|---|---|
| '79 | 3,028,516 | 55,735,601 | 29,248,000 | 3,637,488 | 147,867 | 511,000 | 303,128 |
| '78 | 2,144,798 | 47,458,833 | 24,019,000 | 3,730,574 | 1,518,417 | 3,538,000 | 358,122 |
| '77 | 1,105,200 | 10,662,600 | 19,982,250 | 1,632,300 | 803,250 | 157,000 | 190,800 |
| '76 | 1,517,090 | 20,121,369 | 14,245,477 | 816,474 | 39,392 | 460,481 | 470,830 |
| '75 | 1,412,211 | 20,631,499 | 10,760,680 | 154,510 | 225 | 104,323 | 240,832 |

**4.** *Stock of grain in store at New York.*

| | Wheat. bush. | Corn. bush. | Rye. bush. | Barley. bush. | Oats. bush. | Malt. bush |
|---|---|---|---|---|---|---|
| Nov. 10, '79 | 7,455,616 | 2,610,961 | 283,505 | 333,654 | 720,711 | 180,840 |
| Nov. 11, '78 | 4,539,387 | 4,179,584 | 547,226 | 880,910 | 1,306,069 | 18,057 |

**5.** *Tide-water Receipts at Albany, from opening of navigation to Nov. 1:*

| | Flour. bbls. | Wheat. bush. | Corn. bush. | Rye. bush. | Barley. bush. | Oats. bush. | Malt. bush. |
|---|---|---|---|---|---|---|---|
| '79 | 7,000 | 23,377,500 | 16,636,700 | 1,782,100 | 1,228,300 | 1,017,000 | 289,400 |
| '78 | 9,500 | 23,209,100 | 22,109,100 | 1,569,400 | 1,860,300 | 4,325,600 | 433,800 |
| '77 | 14,600 | 9,842,300 | 20,341,700 | 1,074,000 | 2,853,700 | 3,510,500 | 554,500 |
| '76 | 27,800 | 10,089,700 | 10,221,700 | 698,800 | 1,878,700 | 2,645,200 | 634,500 |
| '75 | 97,500 | 17,114,400 | 7,920,900 | 181,400 | 2,160,700 | 2,168,600 | 596,300 |

Stocks, Produce and Merchandise have been continued quite brisk.—Stock were remarkably so, with resulting and decided buoyancy, despite the stringency in the Money market, which had been adverse to the speculative interest, yet has failed to check the upward movement in values, which has carried quotations, on the general list, to the highest points of the season, leaving off strong. The great railway carriers have been partly benefited by the enormous freight traffic of the Fall. The Coal producing and carrying interests have been very favorably affected by the sharp rise in the price of Coal. In the Merchandise markets, the volume of business has been again liberal, though the aggregate falls short of the result of the extraordinary animation, so characteristic of the preceding month or two. Prices have fluctuated considerably,—in some instances widely,—but, as a rule, stand higher now than at the date of our last review. In the line of Groceries, Sugars advanced materially, during the month, though closing weaker; Coffees and Teas unsettled. Metals attracted less attention; Iron and Iron products declined, and left off irregularly. Hides and Leather have shown a further improvement, on active call for supplies. Dry Goods, and Hardware have been purchased quite freely, and values have been well maintained. Ocean freights have been ruling higher, on a free movement, but closed easier, on more liberal offerings of accommodation for early use.... In the Produce Markets, dealings have been on an extensive scale, especially in Breadstuffs, Cotton, and Provisions,—on Breadstuffs and Provisions, largely for legitimate trade purposes, in the home or export connection,— but to an important aggregate also on speculative account,—the speculative operations in Wheat having been the prominent feature of the business in that staple. Prices have been very variable. Wheat and Flour opened buoyantly, but recently have been declining,—Wheat receding 5@10 cts. a bushel, under a pressure to realize, though at the extreme close, developing anew a hardening tendency, chiefly under speculative manipulation. The supplies of Wheat have been accumulating rapidly, the export call—as checked in part by the disturbance, in values—having failed to reach anything like the proportions of the current offerings in the several home markets, and the latter foreign advices by Cable have been of an unfavorable tenor. Barley has also yielded in price, on very free offerings, and only a comparatively moderate inquiry. Corn and Oats have reacted from the highest figures of the month, but are yet quoted above the closing rates given in our last. Rye is also dearer, and is wanted, though the export requirement is not as urgent as was the case a short time since. A general rise has occurred in Provisions, which have been quite brisk. Butter has bounced up 6@13 cts. per lb., on very moderate offerings, and a good demand; best makes reported as unusually scarce. Cheese has been also quoted higher, with a fair inquiry noted for the better qualities. Eggs have been quoted up 3@5 cts. per dozen, and have been meeting a pretty ready sale, in the instances of prime to fancy marks.... Hops have been in urgent demand for home use and shipment, and prices of new crop show a further rise of 6@10 cts. per lb., closing buoyantly.... Seeds have been on the advance, Clover Seed having been in chief request, mainly on speculative account, though in good part also for shipment, chiefly to the Continent.... Tobacco has been rather more sought after and has been quoted firmer.... A very free movement has been reported in Cotton, mostly in the line of future delivery options, at higher and hardening rates.... Wool has been in reduced supply, and inquired for, quite eagerly, in all the leading markets, at a further advance, the tendency at the close being decidedly in favor of holders. Manufacturers here been buying freely.

CURRENT WHOLESALE PRICES.

| | Oct. 14. | Nov. 13. |
|---|---|---|
| Flour—Super to Extra State | $5 10 @ 6 25 | $4 50 @ 5 75 |
| " Super to Extra South'n. | 5 10 @ 7 75 | 4 50 @ 7 50 |
| " Extra Genesee | 5 75 @ 7 00 | 5 50 @ 6 75 |
| " Superfine Western | 5 10 @ 5 60 | 4 50 @ 5 00 |
| " Extra Western | 5 50 @ 9 00 | 5 15 @ 8 50 |
| " " Minnesota | 5 50 @ 9 00 | 5 15 @ 8 50 |
| Buckwheat Flour, ℔ 100 lbs | — @ — | 2 35 @ 2 75 |
| Buckwheat, per bush | — @ — | 60 @ 62 |
| Rye Flour, Superfine | 3 75 @ 4 50 | 4 85 @ 5 65 |
| Corn-Meal | 2 45 @ 3 25 | 2 65 @ 3 40 |
| Corn-Flour, per bbl | — @ — | 4 00 @ 4 50 |
| Oat Meal, ℔ bbl | 4 30 @ 6 50 | 4 50 @ 6 50 |
| Wheat—All kinds of White. | 1 25 @ 1 48 | 1 21 @ 1 41 |
| " Red and Amber | 1 20 @ 1 40 | 1 22 @ 1 40 |
| " Spring | 1 15 @ 1 37 | 1 07 @ 1 39 |
| Corn—Yellow | 58 @ 65 | 60 @ 67 |
| " White | 58 @ 65 | 60 @ 68 |
| " Mixed | 55 @ 57½ | 57 @ 59 |
| Oats | 37 @ 45 | 40 @ 49 |
| Rye | 85 @ 88 | 85 @ 90 |
| Barley | 80 @ 1 00 | 70 @ 98 |
| Hay—Bale, ℔ 100 lbs | 45 @ 85 | 35 @ 85 |
| Straw, ℔ 100 lbs | 30 @ 65 | 30 @ 70 |
| Cotton—Middlings, ℔ lb | 10⅛ @ 10⅝ | 12⅛ @ 12¼ |
| Hops—Crop of 1879, ℔ lb | 28 @ 37 | 35 @ 47 |
| " " 1878, ℔ lb | 7 @ 18 | 7 @ 18 |
| " olds, ℔ lb | 4 @ 10 | 4 @ 10 |
| Feathers—Live Geese. ℔ lb | 35 @ 47½ | 35 @ 48 |
| Seed—Clover, West. & St. ℔ lb | 7¼ @ 8¾ | 8½ @ 10 |
| " Timothy, ℔ bushel | 2 15 @ 2 35 | 2 60 @ 2 85 |
| " Flax, ℔ bushel | 1 35 @ 1 37½ | 1 50 @ 1 60 |
| Tobacco, Kentucky, &c., ℔ lb. | 2½ @ 12 | 3 @ 14 |
| " Seed Leaf, ℔ lb | 5 @ 40 | 6 @ 35 |
| Wool—Domestic Fleece, ℔ lb | 22 @ 45 | 25 @ 50 |
| " Domestic, pulled, ℔ lb | 22 @ 45 | 24 @ 48 |
| " California | 15 @ 33 | 16 @ 36 |
| Tallow, ℔ lb | 5⅞ @ 6⅛ | 7 @ 7⅜ |
| Oil-Cake—℔ ton | 28 50 @ 28 75 | 30 50 @ — |
| Pork—Mess, ℔ barrel | 9 95 @ 10 25 | 10 90 @ 11 25 |
| " Extra Prime, ℔ barrel | 8 50 @ 9 00 | 8 25 @ 9 25 |
| Beef—Extra mess | 11 25 @ 12 00 | 11 00 @ 11 50 |
| Lard, in tres. & bbls, ℔ 100 lb | 6 05 @ 6 85 | 7 05 @ 7 20 |
| Butter—State, ℔ lb | 12 @ 27 | 18 @ 40 |
| " Western, poor to f'cy. lb. | 10 @ 27 | 16 @ 40 |
| Cheese | 5 @ 12 | 4 @ 13½ |
| Eggs—Fresh, ℔ dozen | 17 @ 19 | 20 @ 24 |
| Poultry—Fowls, ℔ lb | 10 @ 13 | 5 @ 11 |
| " Chickens, ℔ lb | 10 @ 14 | 5 @ 12 |
| " Roosters, ℔ lb | 5 @ 7 | 4 @ 5 |
| Turkeys—℔ lb | 10 @ 13 | 8 @ 10 |
| Geese, ℔ pair | 1 00 @ 1 50 | 1 00 @ 1 50 |
| Ducks, ℔ pair | 40 @ 50 | 40 @ 50 |
| " ℔ lb | 10 @ 16 | 10 @ 13 |
| Capons, ℔ lb | 18 @ 25 | 16 @ 25 |
| Rabbits, ℔ pair | — @ — | 25 @ 35 |
| Hares, ℔ pair | — @ — | 30 @ 40 |
| Ducks, Wild, ℔ pair | — @ — | 20 @ 2 00 |
| Quail, ℔ dozen | — @ — | 2 25 @ 2 50 |
| Woodcock, ℔ pair | 50 @ 60 | 40 @ 50 |
| Partridge, ℔ pair | 50 @ 1 00 | 50 @ 1 00 |
| Snipe, per doz | 50 @ 1 50 | 40 @ 2 00 |
| Pigeons, ℔ doz | 1 25 @ 2 37½ | 1 25 @ 2 25 |
| Grouse, ℔ pair | 75 @ 1 00 | 60 @ 1 00 |
| Venison, ℔ lb | — @ — | 7 @ 16 |
| Apples, ℔ barrel | 75 @ 1 75 | 1 50 @ 3 25 |
| Pears, ℔ bbl | 1 50 @ 5 50 | 1 50 @ 4 75 |
| Quinces, @ bbl | 2 00 @ 5 00 | 3 00 @ 6 50 |
| Grapes, ℔ lb | 3 @ 8 | 2 @ 5 |
| Potatoes, ℔ bbl | 1 00 @ 1 25 | 87 @ 1 75 |
| " Sweet, ℔ bbl | 1 00 @ 2 00 | 1 25 @ 2 25 |
| Turnips ℔ bbl | 75 @ 1 00 | 75 @ 1 00 |
| Tomatoes, ℔ box | 25 @ 40 | — @ — |
| Beans—℔ bushel | 1 30 @ 1 75 | 1 80 @ 2 10 |
| Peas—Canada, in bond, ℔ bu | 70 @ — | — @ 80 |
| " new, green, ℔ bag | 1 25 @ 1 75 | 1 75 @ 2 00 |
| Corn, Green ℔ 100 | 35 @ 1 00 | — @ — |
| Lima Beans, ℔ bag | 1 00 @ 1 75 | — @ — |
| String Beans, ℔ bag | 60 @ 1 00 | — @ — |
| Broom-corn | 2½ @ 6½ | 3½ @ 6½ |
| Carrots, ℔ 100 bunches | 1 00 @ — | 75 @ 1 00 |
| Beets, ℔ 100 bunches | 75 @ 1 25 | 75 @ 1 00 |
| Cabbages—℔ 100 | 1 75 @ 4 00 | 3 00 @ 4 50 |
| Cauliflower, ℔ doz | 50 @ 3 00 | 2 00 @ 6 00 |
| Onions—℔ bbl | 1 50 @ 2 50 | 2 50 @ 3 50 |
| Cranberries, per bbl | 4 50 @ 6 50 | 4 50 @ 7 25 |
| Squash, ℔ bbl | 50 @ 75 | 50 @ 1 50 |
| Celery, per dozen bunches. | — @ — | 1 00 @ 1 25 |
| Pumpkins, ℔ 100 | 2 00 @ 5 00 | 3 00 @ 6 00 |

## New York Live-Stock Markets.

RECEIPTS.

| WEEK ENDING | *Beeves.* | *Cows.* | *Calves.* | *Sheep.* | *Swine.* |
|---|---|---|---|---|---|
| Oct. 13............. | 13,458 | 190 | 2,984 | 36,200 | 35,415 |
| Oct. 20............. | 10,279 | 267 | 3,749 | 37,389 | 43,323 |
| Oct. 27............. | 13,727 | 354 | 3,612 | 42,917 | 46,691 |
| Nov. 3 ........ | 14,223 | 227 | 2,839 | 45,963 | 47,518 |
| Nov. 10............. | 11,966 | 333 | 3,074 | 34,944 | 48,296 |
| *Total for* 5 *Weeks.*. | 63,683 | 1,371 | 16,253 | 197,413 | 221,243 |
| do. *for prev.* 4 *Weeks* | 47,888 | 906 | 15,836 | 132,107 | 131,567 |

| | *Beeves.* | *Cows.* | *Calves.* | *Sheep.* | *Swine.* |
|---|---|---|---|---|---|
| *Average per Week*....... | 12,736 | 272 | 3,251 | 39,413 | 44,248 |
| do. do. *last Month*... | 11,972 | 226 | 4,209 | 33,027 | 32,892 |
| do. do. *prev's Month*.. | 14,839 | 216 | 4,317 | 35,382 | 24,413 |

Prices for beeves the past five weeks were as follows:

| WEEK ENDING | *Range.* | *Larger Sales.* | *Aver.* |
|---|---|---|---|
| Oct. 13 .......... | 6¼@10¼c. | 7½@ 9½c. | 8½c. |
| Oct. 20.......... | 7 @10 c. | 7 @10½c. | 9 c. |
| Oct. 27.......... | 5½@10½c. | 8 @ 9½c. | 9 c. |
| Nov. 3.......... | 6¾@10¼c. | 8 @ 9¼c. | 8¾c. |
| Nov. 10.......... | 6 @10 c. | 7½@ 9 c. | 8¼c. |

**Beeves.**—The market opened weak, and at lower prices, but with favorable weather and smaller receipts, a sharp rally occurred which carried prices up ¼c. per ℔. Increased supplies finally broke the market, and the advance was partially lost. The receipts in the first week of November were larger than ever known in any previous week. The shipping trade has been active, and 4,000 quarters of beef per week has been about the average business. At the close, considerably lower prices prevailed, and the market became worse than ever before known. Many cattle were left unsold. Colorados sold for 6¼@7c. per ℔.; fair native steers at 8¼@9¼c., and good to prime at 9¼@10c. per ℔.... **Cows.**—The demand for cows has been brisk, and prices advanced $5@$10 per head early in the month, good cows selling readily for $60. The gain was lost under large receipts, and a lessened business, and prices fell off to former figures. An extra good cow will still bring $60, and poor ones go from $25 to $35 per head.... **Calves.**—A good demand has existed for veals, and better prices were made early in the month. The trade, however, became quiet, and closed with a downward tendency as to prices. Grassers sold for 1½@2c. ℘ ℔.; fed calves at 2½@3½c. per ℔., and common to choice veals at 4@7½c. per ℔., live weight.... **Sheep.**—The supply has been larger than ever before known, and a dull business, with lower prices, failed to clear the market of stock. Lambs have come forward of good quality, and prices have been sustained for these. Closing prices were lower, and ruled from 3@5½c. ℘ ℔. for common to good sheep; 400 prime Pennsylvania sheep brought the latter price. Lambs sold well at 4½@5½c. ℘ ℔.... **Swine.**—The business in live hogs has been firm, with advancing prices. Sales were made at the close at 3¾@4¼c. ℘ ℔., with a tendency of prices downwards.

**Horse Market.**—A good demand has existed for common to good work horses worth from $100 to $225 per head. The foreign shipping business has been so active that every available horse has been at work, and truck horses have been in demand. Large, heavy draft horses have also been in request, and $300 has been readily paid for them. Fancy carriage horses are inquired for, but the difficulty of selling American horses in Europe at present prices, restricts actual business. A slight reduction in the prices asked would doubtless make business more active.

### Prices of Feed.

| | |
|---|---|
| Bran, per ton................................ | $16.00@$18.00 |
| Middlings, per ton............................ | 19.00@ 20.00 |
| Ground Feed, per ton.......................... | 21.00@ 23.00 |
| Linseed-oil-cake, per ton...................... | 35.00@ 40.00 |
| Cotton-seed-meal, per ton...................... | 26.00@ — |
| Chandler's Scraps, per ℔...................... | 2@ 3 |

### Prices of Fertilizers.

| | |
|---|---|
| Nitrate of Potash (95 per cent.), per lb. .......... | 9 @9½c. |
| Sulphate of Potash (potash 44 per cent) per lb.... | 3½@4 c. |
| do. do. (potash 27½ per cent) per lb.. | 1½@1¾c. |
| German Potash Salts (potash 12 to 15 p. c. p. ton. | $15.00@18.00 |
| Muriate of Potash (potash 50 per cent), per lb.... | 2 @2¼c. |
| Nitrate of Soda, per lb........................ | 4¾@5 c. |
| Sulphate of Ammonia (25 per cent.), per lb..... | 4c.@4¼c. |
| Dried Blood (ammonia 13 per cent) per ton...... | $40.00@45.00 |
| No. 1. Peruv. Guano 10 p. ct. ammonia, standard, ℘ ton.. | $56.50 |
| do. do. Lobos, do. do. do..... | 47.50 |
| do. do. guaranteed, ℘ ton, cargo K | 56.00 |
| do. do. rectified, per ton, 9.00 p. c.. | 65.00 |
| do. do. do. do. 3.40 p. c. | 51.00 |
| Soluble Pacific Guano, ℘ ton................... | 45.00 |
| Excelsior Fertilizer Works, Fine Ground Raw Bone,... | 55.00 |
| Mapes' Complete Manure (clay soils) per 1,000 lbs....... | 25.00 |
| do. do. do. (light soils) per 1,000 lbs.... .. | 25.00 |
| do. do. do. "A" Brand, (wheat) ℘ 1,000 lbs. | 20.00 |
| do. Bone, strictly pure, meal .....per ton....... | 42.00 |
| do. do. do. medium...... do. | 36.00 |
| do. do. do. dissolved..... do. | 42.00 |
| do. Fruit and Vine Manure........... do. | 35.00 |
| Stockbridge Rye Manure, per ton | 45.00 |
| " Wheat do do | 45.00 |
| " Seeding Down Manure. per ton...... | 40.00 |
| Bowker's Wheat Phosphate, per ton. ............ | 40.00 |
| Baugh's Raw Bone Phosphate, per ton............ | 33.00 |
| Baugh's Manure for Tobacco and Grain, per ton.. | 45.00 |
| Walton, Whann & Co.'s Raw Bone Phosphate.... | 40.00 |
| Gypsum, Nova Scotia, ground, per ton.......... | 7.50 |

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**The North Carolina Exhibition** will open on the 3rd inst. and close on the 13th. Though called an "Industrial Exhibition" it will include the produce of the farm and poultry, but we do not think cattle and horses are included. If the managers of such exhibitions would send their announcements in season we could call attention to them at a time when it would be of more service.

# And Now for the Holiday Presents IN EARNEST.

The Holidays are close at hand. "What shall I give to make this or that friend **Merry** at **Christmas** and **Happy** at **New Years,**" is already in every mind beneath which beats a good heart.

We had *this* Season prominently in view, when gathering and describing that grand assortment of Premium Articles, the list of which every reader has received ere this. (If not send for it at once.) *It is the most* VALUABLE *collection of such articles ever offered by any Journal in the world*—we meant it should be so. There are useful and most desirable things, for all circumstances and at all prices, from 50 cents up to $150 and more.

And many thousands of our Readers can get some of them, *without cash outlay*, by simply gathering a list of subscribers, *old* and *new*, for this Journal.

Not a few every year pay for a larger or smaller number of subscriptions and send them to as many different individuals, as Holiday presents—keeping the premium given, or even giving that as a present.

(Those who can not possibly spare a moment's time to gather even a few subscribers, can purchase any one or more of the premium articles at the prices given with each, and with confidence of getting good articles at reasonable prices.)

Those who want *genuine* **Gold and Silver** articles, will find an assortment worth from $2.50 to $17, in Nos. 1 to 16.

The Choice **Books** offered, of many kinds, range all the way from 50 cents up to sets costing $48. There are 847 volumes catalogued on 4 pages.

The **Family Bible** (No. 19) is a most beautiful, valuable, and appropriate gift, or a home treasure.

The **Compound Microscope** (No. 20) will instruct and delight every one, and disappoint no one. Then there are the most useful **Barometers,** and many other most desirable articles, in Numbers 21 to 34—including the best **Telescope** for its price that we have ever seen.

Then the **Multum in Parvo Knife** (No. 35); nothing could be more useful. Other Pocket Knives in Nos. 36 to 49.

The **Big Dictionary,** and the **Pocket** one (Nos. 51 and 53), are indispensable where not already possessed. The **Large Volumes** (No. 54) are of great value.

The **Good Watches** (Nos. 60–63) cannot be excelled in value at the prices named. The **National Organ** (No. 68) will be a valued treasure in any Home, or School, or Church, where good music is desired, and not yet supplied.

The **Clothes-Wringer** (75), the **Suits of Clothing** (76–78), the Wire Bed **Mattress** (79), and the best of **Lamps** (80), are A1, and indispensable almost. The **Cane-Gun** (81) speaks for itself. The good **Pumps** (83–85), many need.

The Trustworthy **Silver-Plated Articles** (Nos. 92 to 115) can be chosen as Premiums (or purchased) *with full confidence* of getting durable articles, and just what they are described to be.

The **India-Rubber** Articles (176 to 184) can not fail to be appreciated. The **Milk-Pail** (185) *ought* to be owned and *used* by every owner of a cow.

But space fails us, for referring in detail to the **354** Good Things described in the Premium List, which all should now read over, at the beginning of this Holiday Month. This is eminently the **Children's Month;** there is not a Child in country, village, or city that will not be delighted with the articles described in Premiums No. **218** to No. **287.**

**Finally,** gather up the Premium subscriptions for 1880, and send them along for the articles desired, and ☞ **Note especially** the following item:

**VERY IMPORTANT–Holiday Presents.**—Many of our readers have already written that they expect to get their holiday presents from the things described in our Premium List—some by purchase—more as premiums for subscriptions. **The Important Hint** we wish to give is, that owing to the activity of business and the increased demand for goods generally, there is already a great pressure and scarce supply of many things most wanted—and those who wait until the last days before Christmas or New Years may be unavoidably disappointed. While all can have as much time as they wish, even up to next June, to complete their lists, it is better for all who know what they are likely to want at or before the Holidays to notify us *at once*, so that the articles may be ordered immediately and be on hand. **N. B.**—Those who desire to do so, can send in at once the price of the premium article or articles and have them forwarded, and deduct the amount thus sent from the final remittances for the subscriptions.

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**SPECIAL PREMIUMS.**—Since our regular Premium List was published, we have made arrangements, whereby we can offer the following desirable premiums for subscribers to the *American Agriculturist:*

**No. 355.–Eighty Acres of Choice Farming Land** in Osceola County, Iowa. This land is located two miles from the border line of Minnesota, and five miles from Bigelow, Minnesota, which is a station on the main line of the St. Paul and Sioux City railroad. The land is undulating prairie, the soil being deep rich loam. It is unencumbered, and all taxes are paid to date. We will present this eighty acres of land to the individual who sends us 600 New Subscribers, at $1.50 each, or we will sell the land for $600 cash.

**No. 356.–Eighty Acres of Fine Land for Farming,** in Platte County, Nebraska. This land is located not far from the prosperous City of Columbus, and in close proximity to a new rail road, which is now being built, north from the Union Pacific rail road at Jackson. Shell Creek, with numerous mills, also runs close to the land. We will present this farm of eighty acres, to the individual who sends us four hundred Subscribers at $1.50 each, or we will sell the same for $400.

# An Earnest Request.

New Mailing Books are opened for 1880. To get subscribers names and the proper address from letters, pass them through the entry books, and thence to the proper place under the right one of the forty-five thousand different Post Offices, requires much care and the work of our most expert and experienced clerks. We would be glad to have this work in progress from the *first day* of December, and not "all in a heap," about the close of the year. We therefore *earnestly request* every subscriber who can, to send in his renewal for 1880 on receipt of this number. It will take no more time now than later on, and will greatly help us. A ready prepared subscription form is given on page 530, to be cut off, and inclosed in place of a letter.

**The Unprecedented Opportunity** to obtain first-class Books, not only those pertaining to Rural Life, but the best Standard works in all departments of Literature, should not be neglected, as it is not likely to soon occur again. Printing or book paper was never before so low, as during the past summer, and it will advance in price, with every thing else. Taking advantage of the low rates, the Publishers of this Journal made arrangements and contracts, enabling them to offer to our readers a choice from 847 most desirable works *on extraordinary terms*, as stated in the Premium List. Any number of persons, from ten to a hundred or more, can unite, and by collecting $1.50 each, secure not only a copy of this Journal for a year for *each* member, but also *as many dollars' worth of books, as there are persons in the club*, and these books can be kept as a Library for the common use of all. Thus 30 or 50 persons uniting can secure $30 or $50 worth of books, which *all* can have the use of—one of the members acting as Librarian or Keeper. Many such Libraries are already made up. Farmers' Clubs, Granges, etc., should not let this opportunity pass, to secure a good Circulating Library. Many individuals are collecting such clubs without the aid of others, and securing the books for their own use.

**It Does Pay, Always,** to read about what others do, and say, and think, in the same line of work or business. If one does not find direct information specially applicable to his own work, yet the thoughts and methods of others incite new thoughts and plans in the reader's own mind, that lead to profitable results. The reading, thinking man, makes his head help his hands. Brains tell everywhere, and in nothing more than in farming, gardening, and housekeeping. And the fewer brains one has, or thinks he has, the more anxious should he be to get all the facts and suggestions he can from other people's thinking and experience.

**Run over the INDEX,** herewith, and then say if you would be without the information and the new thoughts suggested by these thousands of items, the many hundreds of engravings, etc., for the small sum it has cost. The next volume will at least be equally valuable; we mean to make it *much more* valuable. If our friends are satisfied, will they suggest to others of their friends and acquaintances the advantages of joining the company of readers for 1880.

**Further Interesting and Important Figures** will be found in our market reports. From the Port of New York alone, the exports of wheat from Jan. 1 to Nov. 12 reached the enormous and unprecedented amount of 55,735,601 bushels, and an equivalent in flour of about 15 million more bushels, or a total of over 70 million bushels. During the same time, nearly 30,000,000 bushels of Corn, and 3,637,488 bushels of Rye went out to foreign lands—over a hundred million bushels of grain from one port. Much more will continue to go, and more would have already gone, had not speculation run prices unwarrantably high. At fair, remunerative rates, all we can spare—and that is a good deal yet—will be taken by Europe; too high prices will check foreign consumption, and very materially diminish the demand. In return for these exports, gold still pours in upon us from abroad, and enters into all channels of trade, promoting the general prosperity of all classes.

## A National Agricultural Society.

That the State Agricultural Societies, as a whole, have benefited the agriculture of the different States, there is no doubt. That a Society which should be to the whole country what the State Society is to its State, would be desirable, has occurred to and occupied the minds of many, is shown by at least two attempts to form such an Association. A National Society, which started out with whatever of prestige eminent names could give, had its apparently successful career suddenly terminated by the war. Later, there has been the National Agricultural Congress, which was never very strong in members, and has at each successive meeting so diminished in attendance that it can hardly survive another year. One need not look for the cause of the want of success of this Congress beyond the fact that it came into existence at the call of the superfluous Department of Agriculture, under the reign of Commissioner Watts, and its first meeting was held in the Department building. It was thus blighted at its birth, and though its subsequent meetings have been held elsewhere, it has never been able to free itself from the untoward influence.

Another attempt to form a National Agricultural Society has been made—or rather, we should say, is about to be made. Some persons interested in agriculture called a meeting, which was held at the rooms of the Farmers' Club of the American Institute a few weeks ago, for the purpose of forming a Society. The meeting was quite well attended, but it did little beyond appointing a Committee to consider the subject of forming a Society, and to call a subsequent meeting for its permanent organization, which meeting will be held on the 10th of this month. As some of those who have the matter in hand are very much in earnest, we have no doubt that the third attempt will be made to form a National Agricultural Society. If there is a field for such a Society—and we do not doubt that there is, if the Society is equal to it—the present is a most favorable time for starting it. The public feeling is right for new enterprises, and buoyant with the successes of the year. That a Society will be formed we have little doubt. What *kind* of a Society it shall be, we shall know after the meeting has been held. We hope that it may be one that shall be of use to our agriculture as a whole, and thus a benefit to every farmer, rather than one that shall be an organized failure from the start. As the Society is as yet in the future, we may not be charged with offering it unsolicited advice, but may, with propriety, say a word to the individuals who will meet to form the Society, as to what we regard as essential to its success: Cut free from and avoid the Farmers' Club, and every other body or society at present in existence. In saying this, we have no reference to the character of the Club, which, we are told, is wonderfully improved, but because the preliminary meeting was held at its room—and we should say the same of any other club or association. In such matters, it is a well established fact that a Society which starts under the wing or patronage of another can no more flourish than can most plants when set in the shade and drip of trees. If the Society is started in the room of the Farmers' Club, with the men who have been prominent in the Club, conspicuous in its organization, the public will never learn to separate the two, and the Society will be regarded as merely an enlarged Farmers' Club, whatever the name by which it may call itself. It is absolutely essential to the future of the Society that it assume at the very outset a distinct and independent existence. A second point is, keep all axe-grinders to the rear. While we admit that a maker of a mowing or other machine, or of a fertilizer, or other thing largely used by farmers, may be disinterested in his love for agriculture, and ardently desirous for its advancement, yet the public will not believe that such persons can be disinterested, and the success of the Society demands that men of this kind take a back seat. But there is another class of those who have a commercial interest in agriculture, those who will put themselves forward, and be active in the Society as a means of advertising. All such must be sent to the rear in the organization. We hope that a Society may be organized which shall enlist the active aid and co-operation of the farmers in every State, and it will be the fault of the farmers themselves if this is not so, as the call for the meeting is full and general, and pains have been taken to have it reach every State. We hope that the meeting may result in the formation of a Society with which we may be in hearty sympathy, and one which shall at once commend itself to the respect of the agriculturists of every part of the broad land.

**Humbugs—Millions of Dollars Saved.**—There is no question that the persistent exposures of humbugs and swindling schemes, and the agitation of the subject kept up constantly for a score of years in this Journal, have saved to its readers and the country many millions of dollars in the aggregate. Our own correspondence has plainly shown that the saving among our readers alone has been far greater than the entire sum paid in subscriptions since the paper came into existence. It is a remarkable fact that among the multitude of libel suits begun against us, *not one* has been even partially successful, but in *every case*, where the suit has not been gladly dropped or withdrawn, we have received the strong commendation of judges and juries in the final verdict. We shall not slacken our efforts in this direction. If a copy of this Journal could be placed in every family, the swindling fraternity would have to go into honest pursuits, or starve.

*containing a great variety of Items, including many good Hints and Suggestions, which we throw into smaller type and condensed form, for want of room elsewhere.*

**The German Edition.**—All the principal articles and engravings that appear in the *American Agriculturist* are reproduced in the German Edition. Besides these, there is a special department, edited by an eminent German cultivator. Our friends can do us a good service by calling the attention of their German neighbors and friends to the fact that they can have the paper in their own language, and those who employ Germans will find this Journal a most useful and acceptable present.

**Read the Advertising Columns.**—Letters are daily received by the editors, asking where pigs, fowls, seeds, fertilizers, machinery, etc., can be procured. We consider all the information of this kind that is given in the advertising pages sufficient, if those needing anything will only look there; and can not find room to repeat what is already plainly told elsewhere. Every page of the *American Agriculturist*, including the covers, is interesting reading, and should all be carefully examined every month. In addition to looking after what one may want, the reading of what others have to say, in offering their wares, etc., starts up some new idea in the mind of the reader.—When writing to any advertiser, always tell him in what paper his advertisement was seen

**No Parting Words.**—Though closing the volume, we offer no valedictory. Our work goes right on from month to month, and year to year, and we confidently hope that every present reader will "walk and talk" with us in the future as in the past. Our own plans and purposes for the coming Volume are large, and we know it will be worthy of the continued patronage of all our past readers and of many new ones who have already come in thousands.

**This Number will be sent Free** to all *new* subscribers for 1880, coming to hand prior to Dec. 6th.

**A Specimen Number** will be sent to any address supplied by our readers. Of course they will only make this request in cases where such specimens will be likely to be useful.

**For the Whole Country.**—This is the AMERICAN *Agriculturist*, and the Editors aim to make it useful to every part of the country, to the entire American Continent. A recent very large increase of readers at the West and South, where the circulation has always been liberal, shows an appreciation of the fact that this Journal is adapted to the wants of *all* sections. The principles of soil culture, feeding, etc., are the same everywhere. Profitable Farm work is being more and more subject to mechanical, labor-saving and labor-helping appliances. No other Journal so abounds in engravings and descriptions of such appliances, and the *American Agriculturist* fills a place occupied by no other, however many local journals are taken—the more the better.

**A Letter Ready Written for You.**—It is often a bother to hunt up paper and fill it out in proper form. On page 530 will be found a Subscription Form prepared to be cut off without injury to the paper, and *used as a letter after filling in the Blanks.* When more than ten names are to be sent, an additional sheet can be added at the bottom. ☞ Let all matters for the *Editors* be on a separate paper, having also on it the date and your name and address.

**Over 25,000 Men, Women, and Children** have enjoyed the use of valuable articles obtained *free* from this Office, in return for their kind influence in making the *American Agriculturist* known to others and collecting and forwarding subscriptions—and they have doubtless thus benefited those invited to become readers. *The Reader of this can*, without much trouble, be one of the many thousand who will receive these premium articles the present month and during the coming winter. We invite every one to try it. If the premium list has been lost or mislaid, send a Postal request for another

**Chrysanthemum Culture.**—The extent to which specialities in floriculture are encouraged in England, is shown by the fact that there are exhibitions announced to be held this autumn, by no less than 26 Chrysanthemum Societies, besides special shows of this flower by the Royal Horticultural Society.

**A Prize Jersey Cow.**—"B. J. F.," Wallingford, Conn., states that Edward Malley, of New Haven, was awarded a $10 silver cup, as a premium at an agricultural fair, (locality not given,) for his Jersey cow "Minney." This cow has given 8,686 lbs. of milk, from April 1st, to September 30, an average of over 37 lbs., (17 quarts) daily, for 183 days. He hopes for a record of 16,000 lbs. of milk in 12 months. This cow has averaged 15 lbs. of butter weekly, on grass and bran feed, (quantity not given).

**Leaves in an Ice Pond.**—"D. G. C.," P. G. Co., Md. Water in freezing, becomes purified to some extent; for instance, the ice from salt water is nearly or quite fresh, and suspended or dissolved matters may be precipitated during the process of congelation. Leaves, or such matters, will not prevent the formation of ice in a pond, and unless the ice is mixed with drinking water, which is unnecessary, no damage will occur to the ice. The common method of using ice is not healthful; the ice should be used for cooling the water, as for cooling milk, etc., by placing it in a separate vessel, within, or around the drinking water, and not dissolved in it.

**Another "Surprise" Apple.**—The little, pale, waxy, yellow apple, which, when cut, justifies its title, by the "surprise" its dark red flesh is sure to cause, with those who have not before seen it, is now surpassed, in size at least, if in no other quality. The "Pacific Rural Press," describes "Mattison's Seedling," raised by Mr. A. Mattison, of Nevada Co. This is a good sized apple, "tending towards large," yellowish green without, and "as thoroughly tinted with pink, as the core of a watermelon;" flesh crisp and tender.

**A New Tanning Material** is coming into extended use in France. It is the bark of a tree which grows in the Argentine Republic, called there, *Quebracho Colorado*, (a species of *Loxopterygium*), and of the same family with the Sumachs. It is said to be superior to oak-bark, and shortens the time of tanning by about one half. One French firm recently ordered 25,000 tons.

**An Ancient Fig Tree** exists at Roscoff, on the coast of Brittany. It was planted about the year 1621, and the spread of its branches is said to measure 25 yards; the wide spreading branches are propped up by 35 stone pillars, besides several wooden posts.

**Potatoes in England** turn out so badly, that a potato famine is threatened, and the journals, "The Lancet," (medical of course), among others, are looking about, as in 1846, for substitutes. *Haricots Blancs* (they dont "know beans" in England, but that means White Beans), Lentils, Rice, Oat-meal, and even the despised Maize, are among the proposed articles. An excellent substitute, would be dried potatoes. Some of our large evaporating establishments, should make the experiment. Potatoes properly dried, being first cooked, and ground into coarse meal, by the addition of boiling water, make at once a dish of mashed potatoes, difficult to distinguish from that prepared in the ordinary manner.

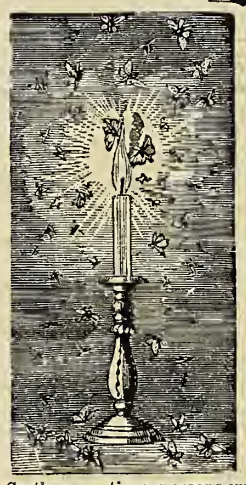
**A Climbing Gentian.**—The "Gardener's Chronicle" states that *Crawfurdia Japonica* is coming into flower at Kew. Judging from a dried specimen recently sent us by the editor of our Japanese contemporary, the *No-gio-Zashi*, it must be an attractive vine, with bright blue flowers, about half the size of our closed Gentian in the axils of the leaves. As it is found on the higher mountains in Japan, etc., we hope it may prove hardy with us.

**Horse-Racing at Fairs—A "Pat" Illustration.**—On page 455, last month, we took care to withhold any editorial endorsement of an implied sanction of horse-racing, etc., at Fairs by our stated contributor. He himself wrote half in vexation at the state of things, as we know he has for many years labored to secure a different state of affairs. We refer to the matter now to give an extract from a letter from one of our Nebraska readers: "....It occurs to me that we might increase the usefulness of our Sunday-Schools by making them more attractive. This could be done by establishing a 'cock-pit' in connection with each school. It is 'innocent amusement'; no cock need fight unless he wants to; by doing this we would attract a great many low characters and other people that need the influence of a Christian education, that can never be reached unless our Sunday-Schools are made more attractive. Charge twenty-five cents admission, ten per cent to go to the owner of the winning chicken, and the rest to go to keep up the school. This plan will also serve a good end in creating an interest in breeding good chickens. In wealthy communities, when people can afford it, we might have a dog fight after Sunday-School as a sort of side-show; make the admission fifteen cents, and use the proceeds for missionary purposes and in extending the Sunday-School. Call a National Sunday-School Reform Convention, and make the writer of the article President and me Secretary. Get Commissioner Gen'l LeDuc to recommend it in his coming Report, on the ground of its tendency to create an interest in the improvement of chickens and dogs ..."

**How to Use Lime.**—"J. R. P.," Watertown, N. Y. Lime may be used in any convenient manner, so that it is in a fine state of division, and is kept near the surface. From 10 to 20 bushels per acre, may be spread on grass fields, or pastures, and 40 or 50 bushels may be applied to plowed ground, and harrowed in. As it is slowly soluble, its effects are lasting, so long as the very fine particles are not washed down to the subsoil, where, being beyond the reach of the roots, they can do little good.

**The West or South for Sheep.**—"C. E. H.," Orange, N. J. The Western Territories certainly offer better opportunities for successful sheep keeping, than the South, at least at present. No doubt Montana, and even Eastern Oregon, are unsurpassed for sheep-pasturing, but there are draw-backs there, which are inseparable from any newly settled, and sparsely occupied country. Wool may be carried very far, for a small proportionate cost, and distance from markets is a light objection.

## Sundry Humbugs.



We can not give in every issue our views about Stock Speculations or about Lotteries. Circulars continue to be sent out by certain parties in and near Wall Street, of a most attractive character, showing how certainly a small sum, placed in their hands, for them to invest in their particular way, can hardly fail to return to the one sending the money, a very large profit upon the investment. These circulars must go to a large number who invest at once, as we know they do to a great many who are more cautious, and who would invest were they quite sure that it was safe. So these cautious persons write to us, and, as stated last month, these inquiries mainly have reference to the responsibility of the parties sending the circular. As to this, we care nothing. Our objection is not to this or that individual, or firm, but we go behind all that, and object to the business itself. We can not repeat our reasons for objecting to the business; some hints of these were given last month, more was said in July last, and we must refer recent inquirers to these numbers. We may concentrate all we have said in opposition to these Wall Street schemes thus: Such speculations are unsafe. A new man in Wall Street is very liable to be crushed between the upper and nether millstone. Any profit made by an outsider, no matter who is his broker, is a mere chance, with the chances largely against him. And

THEY ARE A FORM OF GAMBLING.

We make the same objection to Lotteries. These just now appear to be greatly troubled with the decisions of the Postmaster General. It now appears that the law does not give him all needed power in the matter, and that he will apply to Congress for supplementary legislation. He wishes a law to exclude from the mails all

NEWSPAPERS WHICH ADVERTISE LOTTERIES,

which, if passed, will cause squirming among some of the large dailies ...That "Royal Gift Soirée" Company at St. Stephen, N. B., seems to be the most active of the present Lotteries. It is working away as if it had all the old Missouri, Topeka, Wyoming, and such lotteries rolled into one, with Pattee himself at the helm, and all the Elias Bros. in the crew. It has quarterly soirées and monthly soirées. To be sure, it hasn't any Mayor in the management, but it has an ex-Chief of Police. And yet the "Soirée," Royal though it be, is not happy. "Uneasy lies the head that wears a crown." The tickets of the "Swarry" have not only a "Crown," but the Lion *and* the Unicorn, too. The great American Eagle had a tussle with the Lion once before—it's an old grudge, and its now gone at it through the "Soirée;" and with all their parcels that they now send for, some do manage to get through the mails—the following is enclosed:

"SPECIAL NOTICE.

"On account of certain new regulations in the U. S. Postal Department, until further notice, all communications, registered letters, etc., must be addressed thus—Henry G."—but we won't advertise the Soirée by giving Henry's full name. But the ex-Chief of Police must stand in the rear....It will be recollected that in September last, we gave an account of our search for

HORTON AND HIS STUMP EXTRACTOR,

and that in October we gave a fac-simile of the engraving, showing how to harness the stump with a wire, so as to hold it still while electricity could do its work. We stated then that we had the box of powder which was to be put "on the head of the nail in the top of the stump." We are glad that our Insurance offices didn't know that we had a box of powder in the house, but as we kept it away from the heads of any nails, we felt tolerably safe. But wishing to finish up the history of this remarkable "Stump Extractor," we sent the powder to Prof. Atwater, at the Wesleyan University, at Middletown, Conn. It was too much for him. No doubt fearing that if he meddled with a thing that would blow up a stump, he could apply no more "Science to Farming," so he, in the exercise of due caution, gave it over to the care of one of his assistants, Mr. A. W. Harris, who soon

MADE THE POWDER TELL ITS STORY,

and here it is. There was $Na+H\,Cl$. and $Ca+CO_2$, and moreover Fe. Besides these there were some undissolved fragments, apparently of C. and $Si.O_2$. One would be warranted in thinking this a pretty lively powder, if he didn't know that this is a chemist's short way of saying: "This powder consists of Salt, Chalk, and some Oxide of Iron to color it, and there was some Coal and Sand left undissolved." Salt and Chalk! Horton must be a green hand at humbugs, for he sold almost four ounces for a dollar, and directed a whole pinch to be applied at a time. Had he sent only a dram for a dollar, and directed the application to the head of the nail of what could be taken up on the point of a penknife, it would have destroyed the stump *just as quick*, and saved him much postage. Horton, you are a disgrace to the humbug profession—you'll never succeed. We're disgusted with you.

THE OLD, OLD STORY,

comes from a town in Connecticut. Traveller comes with a Mowing Machine Sharpener—oh! that some easy way could be found to sharpen farmers' wits, when these chaps come! He represents the "Empire Company." He would establish an agency. As Farmer is not to pay for sharpeners until sold, he becomes agent, and sharpening machines are sent him. Soon after Farmer gets machines, *another* chap comes to collect the bill, or make some settlement. Of course he wants a note, of course—there seems to be a fatality about it.

FARMER GIVES THE NOTE.

and the jig is up with the Farmer. We have these months and years cautioned him not to do it. We began a long time ago printing in every issue:

FARMERS, BE CAREFUL WHAT YOU SIGN,

until we were tired of the sight of it. After a while, we changed the caution, and it read:

FARMERS, DON'T SIGN ANYTHING FOR STRANGERS.

We cannot see that much good resulted to *some* readers, for about every month we get the same story. Our Connecticut farmer was told by the glib-tongued chap that at the end of six months the note would be presented by the "Company" and he would only have to pay for the machines sold. *This* was not in writing, mind you,—*the note was*. Farmer gets suspicious. He finds that he has made a negotiable note, he wants his note back. Too late—said note has been sold to some one in Philadelphia, and when due the Philadelphian will no doubt collect it. Our farmer seing that he is done for, writes to tell us how he was done, in the hope that he may warn others.—We hope it may, but fear it won't. The writer of the "Humbugs" would give to the Farmer—every farmer—his last word for the year. It is:

DO NOT SIGN ANYTHING FOR STRANGERS.

We receive many inquiries asking if this or that simple device is patented. These questions relate more than to any other thing else, to

GATES AND FENCES.

A farmer builds a fence or gate according to a description or illustration he finds in the *American Agriculturist* or other journal, and in course of time is visited by some one claiming to have a patent on the plan, asking a royalty and if refused threatening a prosecution. We can not tell, off-hand, whether a given thing is patented or not; that can only be ascertained by application at the Patent Office. We hold that every inventor should have the benefit of his invention, and we, in justice to both inventors and the public, never publish a patented article without most distinctly stating that it *is* patented. Yet our patent laws are very faulty. If, for example we publish an entirely new device of our own, a person in some remote State can go and patent it, and then, if he chooses, *can actually prevent us* from building a gate—

or whatever it may he—without paying a royalty upon our own plan! We nphold all legitimate patents, but

THERE IS MUCH FRAUD ABOUT PATENTS.

Some scoundrels make it a business to go abont the conntry elaiming a royalty npon things not patented by them or by any one else. The farmer fears that he must either pay the sum demanded or staud a law-suit. But do not be frightened—farmers in this country have rights as well as patentees. In sueh cases go slow. One claiming to have a patent knows himself whether he is a fraud, or has an honest claim. If his claim is a just one, he will feel confideuee in it—he will not threaten or try to bully. He will know that he has the law on his side, will know that the farmer has unintentionally violated his right; at the same time, the farmer, seeing that he has unwittingly trespassed upon the patent of another, will be willing to do the fair thing. Those two—the farmer and the holder of the patent, if *bona fide*—will not be long in coming to a settlement satisfactory to both,

BUT IF A FRAUDULENT CLAIM IS MADE,

Don't get frightened, but gc slow. In this conntry even a pretended patentee can not throw a farmer into a dungeon and feed him on bread and water. The thing is to be settled by law, and in a *United States Court*—not before the next Justice of the Peace. If one claims that a gate or other thing is patented, ask to see the patent, yon are not obliged to take his word for it. If he has his patent, take its date and nnmber. If he has not the document with him, ask for the date and nnmber. If he can't give these, tell him that when he can bring them, you will eonsider the matter further, "but for the present as I am rather busy—Good Morning."—If he does give date and number, tell him that yon will write to the Patent Office to see if it is all right. Mark this: If one has an honest patent, he will accept the justice of your position, otherwise

HE IS PROBABLY A FRAUD.

We are aware that when a farmer feels in doubt as to his position, he is disposed to avoid trouble and compromise a claim as he best may. But a farmer should not stand alone in such matters. There should be a Farmers' Club in every neighhorhood, each member of which can feel that he has the support of all the others, some associate body of farmers, whether Grange, Clnb, or by whatever name, to which sneh matters may be referred, and in which the cause of one is the canse of all. An article bearing on this subject is given elsewhere, headed

PATENT FARM GATES.

It often happens that farmers and others of our readers visit New York, and other large cities, whether for business, for the sake of seeing the interesting things to be only found in large cities, or to visit their friends. The coming of strangers is more common in winter than at any other time, and at that season, in New York, and we snppose it is the samc elsewhere, certain scoundrels play what we may call the

WELCOMING THE STRANGER GAME.

A few years ago we gave an account of our personal experience in this. In brief, it was done in this way: Always carrying a hand-bag for our letters and papers, and not "dressing up" to excess, we have been accosted a nnmber of times, (three times in one week) as a stranger while on our way from the office to the boat which was to start us on the way to our home in the couutry. A smiling ehap comes up, with hand extended, and says, "Why, how do you do?—Glad indeed to see you.—When did you eome down? How did you leave all the folks? Where are you stopping? When did yon leave Smithville?"—An unsuspecting stranger may say: "I don't live in Smithville, I'm from Jonesboro"—or other place.—"Oh yes, *that* was where I saw yon—yes, yes, I was at both places the same snmmer—I'd forgotten—and how's good old Parson—er—er—well I've forgotten his uame.—By the way, I've just come into the richest thing you ever saw—just come around into the next street and let me show you my luck."—An nnsuspecting man may go—if so he'll come out fleeced. We have one word for

EVERY STRANGER IN A CITY.

When accosted in this manner, repel the chap at once. Make no answer to any of his questions—except to say, "I'm going for the nearest police-man, come along."—Repel every advance from every stranger, whether he approaches in this bluff manner in the streets, or comes in a more insinuating manner at hotels—their object is the same—to fleece .... In the way of Medical Humbugs, there is not much new. We have only spaee for a few notes. All those chaps who pretend to have been missionaries themselves, and have received a wonderful Recipe from some miserable, ignorant savage, or who have had a recipe from a missionary, who got it somewhere, and who propose

TO SEND THE RECIPE FREE.

Every one—and the whole "kit and boodle," collectively, are, individually and together—without any exception in favor of one fraud over another—utterly untrustworthy. The more they pretend to mix up the "Missionary" with their quackery, the worse humhugs they are. We have explained the whole method of their operations over and over again, and can't repeat. Let them severely alone....One subscriber in Maryland,

TAKES AN UNFAIR ADVANTAGE.

He sends us a list of several persons, some of whom we never before heard of, while some are miserable quacks, and says; "If, so far as you know, they are reliable, we shall not look for any mention of their names, but if not, we hope to find them exposed in Snndry Humbugs." We can not accept the proposition, that every one we don't mention as a fraud, must be "reliable"—Excuse us if yon please.....Here are two circulars that show that,

ANCIENT SUPERSTITIONS STILL LIVE.

One is an advertisement of a book, which the circular may well eall "extraordinary"—It relates the doings of one Newton, (not Isaac), and he is a "Healer,"—whatever that may be. There is a good deal about "Boon to Universal Humanity," "Human Enlightment and Progress," and lots more *hifalutin*, but the moral of it all is, that the book pretends to teach others to be Healers, by a kind of *pawing*, or "laying on of hands," if they will send $2—to some Newton—we won't say where. As we are in the pawing line, we may notice the circular of one Evans, who pictures

A MAGNETIC HAND

at the top of his circular. This hand looks like a glove that has recently been stretched, and there are innumerable flashes of a zigzag something, running into it, or from it, we cannot say which. At all events, it must be a very uncomfortable hand for the owner, or for his friends.

## A Brand New Swindle.

A few days ago, all at once as it were, there came to us a sudden influx of miscellaneous papers and of letters; the one having a large advertisement marked to call attention to it, and the others inclosing the same advertisement cut from various city and country papers, including the leading New York Weekly Journals. The advertisement in question, is of the width of two of our columns, and six inches in length, and must have brought to the "first-class papers" that published it, a very large sum. The advertisement bears a picture of an Opera House, a Mint, a High School, and a Church, displayed one at each corner, while in the center,

"CITY LOTS FREE,"

in large display type, attract the eye at once, while in smaller type we read that the lots are "situated in North Denver;" "Every Other Lot Absolutely Free," and "Warrantee Deed without Reserve." Then follows a glowing description of the City of Denver. Then there is much more talk, all of which amounts in substance to:

"SEND IN YOUR DOLLAR AND GET YOUR DEED,

and hurry too, for there are but 60 days to do it in." This deed would make one the owner of a lot "in North Denver, situated in Weld County, State of Colorado, and in *immediate view*, of this beautiful city"—meaning Denver. We had not read far, before the whole thing seemed very familiar—we had read something like it before; and there came to mind that precious Texas land swindle a few years ago, which the *American Agriculturist* was the first to expose. The saying,

"HISTORY REPEATS ITSELF,"

here had a new illustration. Thinking to have our share of the repeating, here, as in the Texas case—we at once wrote to parties near by the place for direct information—in this case to the "Denver Tribune," giving particulars, and asking for an immediate telegraphic reply. Here is the response:

"*Denver, Colorado.*

*To the Editor of American Agriculturist, New York:*

*Denver Land Company a huge swindle. Will mail full particulars to-night. Charles A. Raymond.*"

Mr. Raymond's letter has not arrived at this writing, but the Associated Press has sent on a despatch that the citizens of Denver were aroused. No doubt jealous of the good name of their city, and indignant that it should be made the field of such a fraud, they at once took the matter up, and the movers in the swindle

WERE AT ONCE ARRESTED,

on the charge of using the Mails for fraudulent purposes. It comes out that this scheme was concocted, and elaborated, like that other—the Texan—in Cincinnati. More repetition of history. The managers give the names, Sidney A. Grant, and A. F. Wilson. These persons had bought a tract of land, and called it "North Denver." And very much "North" it is, being some 40 miles away! that these gentlemen should not be accused of misrepresenting anything, when they speak of their lots as being in "immediate view" of Denver, we may say that such is the transparency of the atmosphere in those regions, that one can easily see a city that is 40 miles off. The career of Grant and Wilson was brief at Denver, yet it is said that in this short time—only about eight days—there came to them through the mail,

"A PERFECT AVALANCHE OF LETTERS,"

as their advertisements had begun to meet with responses. But the thing is "nipped in the bud," and no thanks to those papers who published the advertisements—some 800 it is said. The public is saved hundreds of thousands of dollars Many may wonder how Grant and Wilson were to make much out of the scheme. That "Avalanche of Letters," tells the story. The scheme was a shrewd one, and shows much knowledge of human nature. "Large sales and small profits" was their motto. The chance for a "free lot," was to be open for "sixty days." It would cost but a dollar to try it—just for the fun of the thing—and, as in the Texas scheme, thousands, and hundreds of thousands would hurry to inclose their dollar, and swell the "avalanche of letters." If Grant and Wilson had sent deeds, and no doubt they would have sent some at first, to create confidence, the whole cost would be less than 25c. for each deed, as we showed in the Texas case, leaving a profit of 75c. on each, which, if repeated enough times, will be a "living profit." The land they offered, instead of being worth $1 for 25×175 feet-plots, would probably be dear at 25 cents an acre, unless it can be reached by irrigation.—We are glad to report that many of our Exchanges who received the advertisement, delayed inserting it until they could write or telegraph to this office, as to its character, and they, at least, were saved the mortification of publishing a fraud.

**Experiments with Wheat.**—S. M. Tracy, Professer at the Missouri Agricultural College, has given much attention to the growing of various kinds of wheat, for the past few years. Of 44 varieties, the Red May, ripens first, June 9, and yields 32½ bushels, weighing 62 pounds, per acre. The Russian kinds gave an average of 31 bu. 1879, against 18 bn. for 1878. Prof. Tracy thinks that by proper selecting, the time of harvest may be changed somewhat.

**The Use of Electricity in Agriculture.**—A French farmer is reported as having successfully experimented with an electic motor, in plowing and other work. This is a promising innovation, especially where a water power could be utilized within a mile of the farm. The waterfall in the case mentioned, is used to run a Gramme machine of 2-horse power; a cable of three-fifths of a mile, is employed to convey the current to the barn, where it is made to run the fodder cutters, threshing machine, root mashers, and other machines, by fixed apparatus, and by portable apparatus to do field work. A portable machine, with a coil of wire to convey the motive power, is all that is needed to carry the electricity wherever it may be desired. As to its feasibility, no certain judgment can as yet be made; but if electricity is ever used as a motive force, its applicability to farm work, is unquestionable, under certain circumstances.

**Feed for 50 Sheep.**—"H. J.," Goderich, Ont. To feed 50 sheep from Nov. 15 to April 15, or 5 months, there will be needed about 12 tons of hay or its equivalent in other feed. They may be kept well on 5 tons of hay, 10 tons of straw, and 2 tons of corn-meal, or an equivalent of other grain food. A sheep of 100 lbs. should have 3 pounds of hay daily, or other food to equal it.

**Mad Itch (Erysipelas), in Cattle.**—"D. S.," Morgan Co., Mo. The disease known as "Mad Itch," is really Erysipelas, which is an inflammation of the skin, accompanied with fever. In cattle, the disease usually effects the head and neck, and the irritation is so violent as to excite frenzy in the animal. The cause is a diseased condition of the blood, which may arise from malaria, impure water, indigestible food, or from contact with diseased matter with open sores or wounds. The treatment is to clear the system with cooling purgatives, doses of 16 ounces of Epsom Salts are usually given, and to use antiseptic medicines, as Hyposulphite of Soda, in one ounce doses, continued for some weeks. The diseased skin may be washed with a solution of Sulphate of Zinc (White Vitriol), one dram to a quart of water.

**Carbolic Sheep Dip.**—This preparation has been before the public for many years, and may be regarded as a standard article. It is very rarely that such properties have a permanent character, and when this does occur, it may be taken as the strongest possible testimony as to its intrinsic value.

**Easy Running Wagons.**—"J. R. W.," Concord, N. C. An iron axle wagon, with the best kind of thimble skeins, runs easier than the old fashioned wooden axle, and wooden boxes. The friction is less, when the surfaces in contact are less, and when wrought iron runs on east iron, than with wood on wood. For a good selection of the best wagons, see the advertising columns.

**A Holiday Present Lasting All the Year.**—A copy of this Journal for 1880, sent to a Son, Friend, or Neighbor, will be a fresh gift—a new reminder of you every time the paper arrives all through the year.—The multitude of useful hints and suggestions to be derived from its pages will be an additional cause of gratitude from the recipient towards the sender.

**Eight Hundred Original Engravings,** at a total cost to the reader of $1.50, at most, have been given in this year's Volume of this journal. Many of these are small, but none the less valuable in bringing out plainly to the eye useful contrivances, plants, etc., etc. Such illustrations exert a silent but eminently educating influence. In this age, work of all kinds is being wonderfully aided by mechanical helps, and nowhere more than in farm and garden operations, and the household as well. In this matter of useful illustrations, the *American Agriculturist* very far excels all other journals of like aim and purpose, and it may well find a place in *every* home—no matter how many local or other journals may be taken.

**Carefully Preserve the Index Sheet,** put *loosely* in this number, so that it can be bound or stitched at the beginning of the volume. It gives over 2,000 page references to subjects treated, and to some 800 engravings.

**"By Return Mail."**—The request, "Please let me know by return mail," is very often made by those who write asking some question. Persons who write thus apparently think that a mail goes directly from the office in New York, to their post office. There is no such thing now-a-days, as "return of mail," the railroad postal-cars have changed matters from what they were in the days of stage coaches, and mails on horseback. A mail starts in the direction west, south, etc., every few hours, and all letters are started on their general route, to be assorted and made up as they go.

**Furniture Spots—Cleaning Stove Mica—Turnip Griddle Greaser.**—One whom we know to be an excellent Housekeeper, sends to the *American Agriculturist* the following, which, she writes, were new to her, and may be to some others at least: SPOTS ON VARNISHED FURNITURE are readily removed by rubbing them with essence of peppermint, and afterwards with "furniture polish," or oil. [Spirits of camphor answers similarly to the essence of peppermint.—ED.]....MICA IN STOVES (often wrongly called "ising-glass,") when smoked, is readily cleaned by taking it out and thoroughly washing with vinegar, a little diluted. If it does not come off at once, let it soak a little....TURNIP GRIDDLE GREASER.—My new cook uses a small, flat turnip, cut smooth, slightly dipped in lard, and has hardly a bit of pancake smoke in the kitchen. After a few times, she does not dip it into the grease at all, but uses the same turnip as long as she can.

**Soluble Phenyl** is another of the several useful products that modern science has extracted from coal tar. The testimony in favor of its utility as a disinfectant, and destroyer of insects—especially sheep ticks is abundant.

**The "Greenback" Wheelbarrow.**—A few days ago our attention was arrested by a peculiar, flat, rectangular, *green* package standing in front of A. B. Cohu's farm implement ware rooms, 197 Water st., City, and upon inquiry found it to be a wheelbarrow "done up" and ready for shipment. By removing two nuts and a single bolt the barrow can be folded up in a very short time, so that it will occupy but a small part of its original space. It seems to us that this advantage of folding up is an important one to the farmer and gardener, as, when the season's work is done, the wheelbarrow—a useful implement which every farmer should have, and one that is seldom properly cared for—can be folded up and put away on a rack, or even hung up, out of the way. Mr. C. finds the folding of the barrow an important feature, in shipping, as the freight is not over one-third that on ordinary barrows, and as he is sending them to many ports in Asia, South America, Australia, etc., the saving is considerable. The first figure shows the barrow folded as we first saw it, and when ready for use it appears as in figure 2.

Fig. 1.—THE BARROW FOLDED.

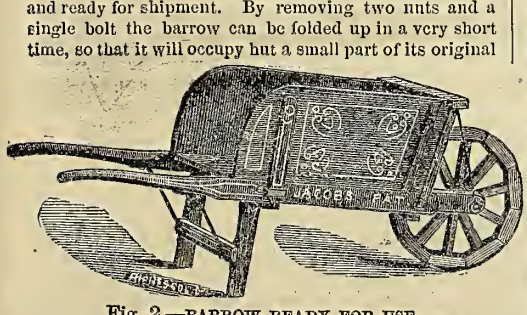


Fig. 2.—BARROW READY FOR USE.

**New Wheats.**—The Royal Agricultural Society of England repeat their offer made last fall, for 1880. The prizes are £25 and £10. As each competitor must send a sack (four bushels) of the grain for trial by cultivation, it is hardly probable that our growers of new varieties will be tempted by the sums to compete for the prizes.

(*Basket Items continued on page* 519.)

## To Secretaries of All Agricultural and Horticultural Societies.

For several reasons, it is desirable to have a live Record of all the acting officers of ALL the Agricultural and Horticultural (including Pomological) Societies in the United States, British America, and so far as may be, of other countries as well. There are multitudes of instances all through the year, when it is desirable to make inquiries in regard to Fairs, and about some subject of general or local interest. We receive very numerous requests asking for the names, location, etc., of some society here or there. We propose to open at the office of the *American Agriculturist* a RECORD BOOK, in which shall be entered alphabetically, under States, Counties, etc., the name of every such Society, with the name of the *President* and *Secretary*, noting changes from time to time.

*We earnestly invite every Secretary (or some other officer who may see this), to send us immediately a slip or Postal giving, 1st, the State (or country); 2d, the County (or Town); 3d, the President and his P. O. address; 4th, the Secretary and his P. O. Address. ALSO, that ALL CHANGES from time to time, in the names of these Officers or Post-Office Address, be promptly forwarded to this office.*

## Fencing—A Most Important Subject—Recent Improvements—Much Cheaper, Better, and More Durable Fences Available.

As intimated in the last *American Agriculturist*, our travels through the West the past season gave opportunity to look into this subject somewhat, and even enlarged our conceptions of its magnitude and importance. We now purpose to take up the matter somewhat fully in this and following papers. We shall show an improvement, of our own suggesting, upon a previous recent invention that we now believe will be of great value, at least to our older, compactly settled farm regions in the Eastern and Middle States, and in many of the Western States. Whether it is the most desirable for all sections of the newer far western regions, or for any section, as for that matter, we leave to be developed by the further discussion of the whole subject. Let us say, here, that we have no pecuniary interest whatever in the new form proposed, or in any other. The claims of the manufacturers of different varieties will be stated fairly, our readers will be a "Committee of Judges," and we earnestly invite them to send us hints and suggestions from their own experience. A thorough setting forth of the subject will be of great practical utility and profit to every individual land proprietor (including owners of village lots even), as well as to the whole country.

### Importance of the Subject.

Cut up into small lots and larger fields, as are all the older lands, the cost of fencing is very great. A square farm of 100 acres, divided into an average of five 10-acre regular fields, and ten 5-acre fields, requires about 1,450 rods, or over 4½ miles of fencing, amounting to $725.00 at 50 cents per rod, which is only about half the present average cost of any good wood fence. The same farm divided into only ten 10-acre fields, and reckoning only half of the outside or line fence, requires 885 rods of fencing. (If one can save 25 cents a rod, and get an equally good and more durable fence, it is a clear saving of $221.00 even on the ten-lot farm.)

A GRANDER ILLUSTRATION.—The following States and Territories contain **989,521,920 acres,** viz., Illinois, Wisconsin, Minnesota, Iowa, Missouri, Kansas, Nebraska, Texas, Colorado, New Mexico, Arizona, Wyoming, Dakota, Montana, and the Indian Territory south of Kansas. Excepting Northern Wisconsin and Minnesota, small portions of Southern Illinois, and some parts of Missouri, the whole of this vast region is practically *treeless*, except along some of the streams, and in some of the more mountainous regions. Deduct 20 per cent for these, and we still have **791,617,536 acres** without native grown timber. If this region were divided into fields *averaging* 160 acres each—a pretty large field, but we are allowing a good deal for waste land—there would be 4,947,609 such *fields*, or farms, each comprising a "Quarter Section" or half-mile square. Charging half the line fence to each field, we have one mile of fencing per 160 acres. (Two cross fences to cut the 160 acres into 40-acre plots would require another mile of fence.)

COST OF A MILE OF FENCE-BOARDS.—In these illustrations we will omit the *posts*, which are usually about half of the entire cost of a board or wire fence. To build one mile of board fence, 4 boards high, requires 1,760 boards 12 feet long and 6 inches wide. Such boards, of good durable quality, delivered in the timberless regions, would probably average $20 per 1,000 feet, board measure, or 12 cents per board, or $211.20 per mile, for the boards only. For the territory above named, to simply fence it into 160 acre fields, or quarter sections, would cost for the fence boards alone the enormous sum of **$1,044,935,020,** or more than a *Thousand Million Dollars!* and double this sum for 40-acre fields. And yet as much fencing as this will be required within a very brief period—allowing for the great number of farms that will be cut into separate large and small fields.

COST OF A MILE OF WIRE FENCE.—Omitting plain wire as practically of little value, and leaving out the posts as above, a good "barbed," galvanized steel wire or strap fence averages about 1 lb. to the rod, or 4 lbs. for a 4-wire high fence, or 1,280 pounds to the mile. This, at an average cost of 10 cents per lb., is $128 per mile. For the above territory (or ⅘ of the region named), to supply such wire for fencing it off into 160 acre fields or farms, would require over Six Thousand Million pounds of steel (6,332,939,520 lbs.), or 3,166,464 *tons*, and would cost **$633,293,952** for the wire alone, but still be a saving over boards of $411,641,068. (These figures are, of course, only a rough approximate estimate, but they show the importance of the subject in the aggregate. When we come down to details, it will be found of decided practical importance to every owner of land, the entire country over, East as well as West and South.)

### Iron Fence Posts Wanted.

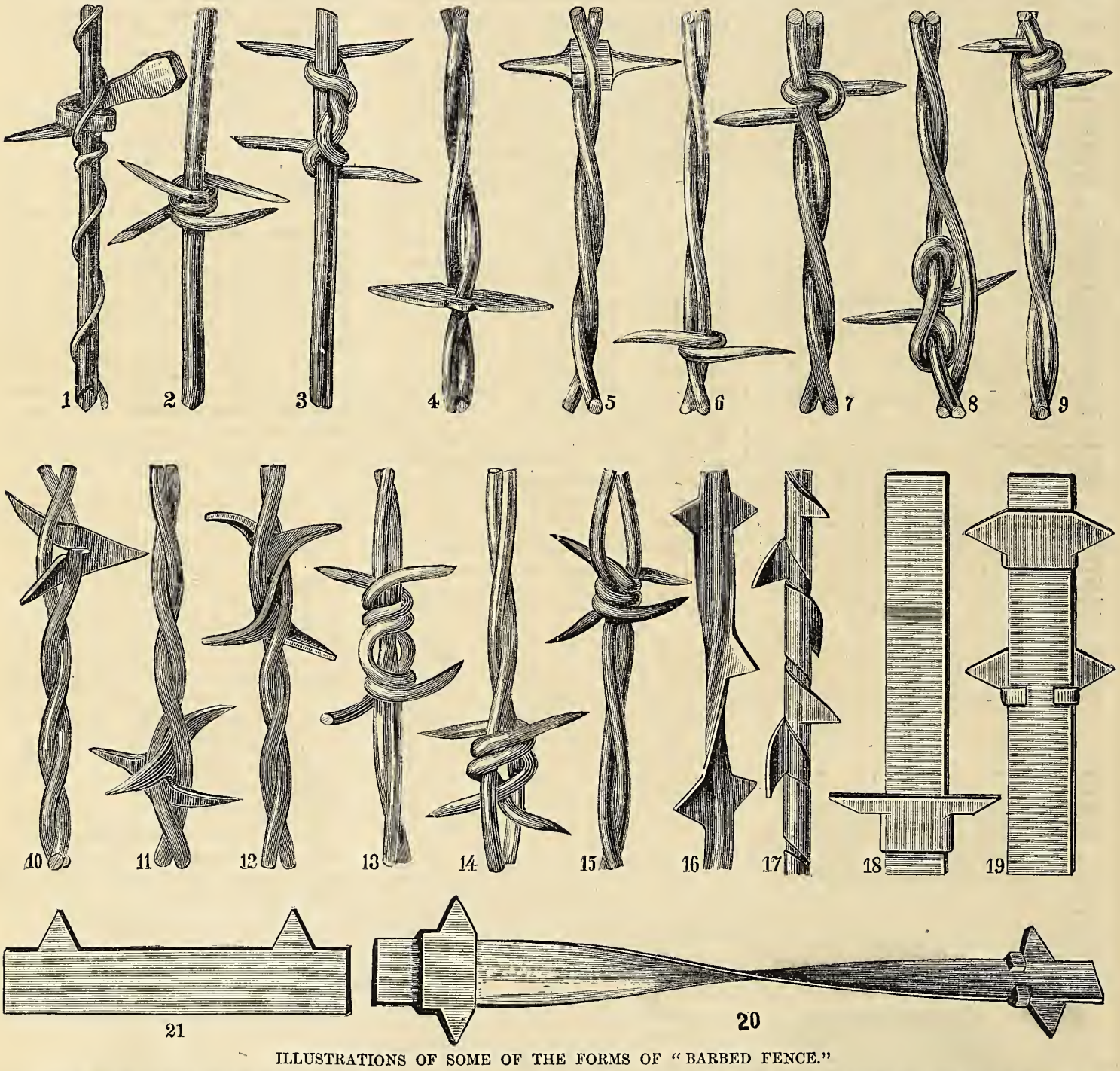
In the above illustrations we have left out fence posts, because practically the cost *per post* is about the same for board or wire fencing. But there is this important difference, viz., that many more posts are required for a board fence than for one of steel wire or strap. As the posts are more than half the cost of any form of plain fence, it is remarkable that the inventive genius of the country has not long since devised an iron post of such practical utility and cheapness as to come into general use. There are a few varieties, in limited use as yet, which we shall describe hereafter. We refer to the subject now to call out information, and to stimulate inventors. There is an immense fortune in store for the man who shall devise an *iron* fence post that will meet the universal want of the country. We invite communications from any of our readers who have had at least one year's experience (summer and winter) with any form of *iron post* for field fencing. Of course it will be important to have only the experience of those who have no direct or indirect interest in either the making or sale of fences or posts—by themselves or friends. All we are aiming at on this whole subject is to get the best reliable information, pro and con, for the benefit of the people, and we have no intention of favoring any particular manufacturers or dealers, except in so far as the real facts

shall indirectly be advantageous to this or that one.

**Barbed Fences.—Various Forms.**

For the reasons stated in our last issue, the plain wire fences are unsatisfactory—something better is desired and absolutely needed. If we had not abundant proof of this in the general past experience, the immense sales of various forms of *barbed* fences now taking place is sufficient. Instead of the 60,000 miles reported last month, we may safely say there are a hundred thousand miles of such fence already manufactured and up in this country.

WHAT IS THE BEST BARBED FENCE, now obtainable, all things considered, is *the* practical question. To ascertain this point is the main object of the articles we propose to give. We thought we had found it, or were coming to it, last month, and we still think we have found, or helped devise the best form for many circumstances. But further investigation, and a variety of information from several sources within a month past, compels us to go farther into the subject, and to call in the united aid and wisdom of practical men among our readers. A very large number of patents have been issued for various forms and modifications of barbed fences. In the illustrations herewith, we present a few of the leading forms, such as we have samples of. The engravings, carefully drawn from the samples, give the exact size, appearance, and construction of the different forms. For want of space, time, and for fuller investigation, we defer a further description of the peculiarities of these several forms to further papers on the subject.




ILLUSTRATIONS OF SOME OF THE FORMS OF "BARBED FENCE."

The Illustrations here given are introduced to show some of the various forms of Barbed fence, most of which are now in use, and several of which are now being very largely made and sold. These are all the forms of which we have so far obtained samples. We have seen engravings of half a dozen others, and heard of still more. We will show others, not here given, as we obtain samples. The names and the manufacturers of all these varieties we have not yet ascertained. The description of the several kinds, their merits and demerits, we leave for further discussion, as intimated above. We begin in No. 1 with the single wire, and advance to the more complicated kinds, some of which are very ingenious. They are all made by machinery, we believe.

No. **1.**—Made by a Blacksmith in Iowa, in 1860, the first barb wire made, and all others have grown out of this. It is simply a horse-shoe nail bent around the main wire, and held in place by winding a small wire upon it.....No. **2.**—The Cleveland Barbed Wire.....No. **3.**—Name and manufacturer unknown to us.....No. **4.**—The Kelly Steel Barbed Wire.....No. **5.**—The Chicago Barbed Wire.....No. **6.**—The Two-barbed Fence Wire. We have seen the same form of Barb applied to single larger wire.....No. **7.**—The Sterling Barbed Wire.....No. **8.**—The Bronson Barbed Wire.....No. **9.**—Glidden Patent Steel Barbed Fencing.....No. **10.**—Three-pointed, Stone City Steel Barbed Wire.....No. **11.**—Steel Barbed Cable Fence (Frentress' & Scutt's patents)..... No. **12.**—Spiral Steel Barbed Cable Fence (Watkins' patent).....No. **13.**—Quadrate Barbed Fence.....No. **14.**—Iowa 4-Pointed Barbed Steel Wire (Burnell's patent).....No. **15.**—The Lyman Mfg. Co. Barbed Fence.....No. **16.**—Allis' patent.....No. **17.**—American Barbed Wire Fence.....No. **18.**—Brinkerhoff Steel Strap and Barb.....No. **19.**—Same as No. 18, but with much blunter points, inclined on both sides. (Two barbs are introduced to show both sides. These barbs, in use, are set 5 inches apart on the strap. In most of the forms above illustrated the barbs are usually set about 6 inches apart)..... No. **20.**—A section of No. 19 shown as twisted in putting up.....No. **21.**—This is the form first referred to in our "Notes by the Way," and spoken of last month as involving too much waste in cutting out the strip between the barbs. We sketch this from memory, having loaned the piece brought home.

## Feeding Stuffs.

AVERAGE COMPOSITION, DIGESTIBILITY, AND MONEY VALUE AS GIVEN BY DR. WOLFF FOR GERMANY, 1880.

| KIND OF FODDER. | Water. | Ash. | Organic Substance. Total. Albuminoids. | Total. Fibre. | Total. Other Carbohydrates. | Total. Fat. | Digestible. Albuminoids. | Digestible. Carbohydrates, including fibre | Digestible. Fat. | Nutritive Ratio. | Dollars per 100 lbs. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| I. HAY. | % | % | % | % | % | % | % | % | % | as1: | $ |
| Meadow Hay, poor | 14.3 | 5.0 | 7.5 | 33.5 | 38.2 | 1.5 | 3.4 | 34.9 | 0.5 | 10.6 | 0.48 |
| " " medium | 14.3 | 6.2 | 9.7 | 26.3 | 41.4 | 2.5 | 5.4 | 41.0 | 1.0 | 8.0 | 0.64 |
| " " very good | 15.0 | 7.0 | 11.7 | 21 9 | 41.6 | 2.8 | 7.4 | 41.7 | 1.3 | 6.1 | 0.75 |
| Red Clover, poor | 15.0 | 5.1 | 11.1 | 28.9 | 37.7 | 2.1 | 5.7 | 37.9 | 1.0 | 7.1 | 0.59 |
| " " medium | 16.0 | 5.3 | 12.3 | 26.0 | 38.2 | 2.2 | 7.0 | 38.1 | 1.2 | 5.9 | 0.70 |
| " " very good | 16.5 | 6 0 | 13.5 | 24.0 | 37.1 | 2.9 | 8.5 | 38.2 | 1.7 | 5.0 | 0.79 |
| White Clover, medium | 16.5 | 6.0 | 14.5 | 25.6 | 33.9 | 3.5 | 8.1 | 35.9 | 2.0 | 5.0 | 0.76 |
| Lucerne, medium | 16.0 | 6.2 | 14.4 | 33.0 | 27.9 | 2.5 | 9.4 | 28.3 | 1.0 | 8.3 | 0.71 |
| Swedish (Alsike) Clover | 16.0 | 6.0 | 15.0 | 27.0 | 32.7 | 3.3 | 8 6 | 34.8 | 1.8 | 4.6 | 0.76 |
| Fodder Vetch, medium | 16.7 | 8.3 | 14.2 | 25.5 | 32.3 | 2.5 | 9.4 | 32.5 | 1.5 | 3 9 | 0.77 |
| Peas in bloom | 16.7 | 7.0 | 14.3 | 25.2 | 34.2 | 2.6 | 9.4 | 33.1 | 1.6 | 4.0 | 0.77 |
| Fodder Rye | 14.3 | 5.1 | 10.4 | 23.1 | 44.5 | 2.8 | 6.6 | 44.3 | 1.3 | 7.2 | 0.72 |
| Timothy | 14.3 | 4.5 | 9.7 | 22.7 | 45.8 | 3.0 | 5.8 | 43.4 | 1.4 | 8.1 | 0.70 |
| Italian Rye Grass | 14.3 | 7.8 | 11.2 | 22.9 | 40.6 | 3.2 | 7.1 | 41.5 | 1.4 | 6.3 | 0.74 |
| Upland Grasses, average | 14.3 | 5.8 | 9.5 | 28.7 | 39.1 | 2.6 | 5.3 | 40.9 | 1.1 | 8.2 | 0.64 |
| Hungarian Grass | 13.4 | 5.7 | 10.8 | 29.4 | 38.5 | 2.2 | 6.1 | 41.0 | 0.9 | 7.1 | 0.66 |
| II. GREEN FODDER. | | | | | | | | | | | |
| Grass just before bloom | 75.0 | 2.1 | 3.0 | 6.0 | 13.1 | 0.8 | 2.0 | 13.0 | 0.4 | 7.0 | 0.22 |
| Pasture Grass | 80.0 | 2.0 | 3.5 | 4.0 | 9.7 | 0.8 | 2 5 | 9.9 | 0.4 | 4.4 | 0.21 |
| Rich Pasture Grass | 78.2 | 2.2 | 4.5 | 4.0 | 10.1 | 1.0 | 3.4 | 10.9 | 0.6 | 3.6 | 0.27 |
| Italian Rye Grass | 73.4 | 2.8 | 3.6 | 7.1 | 12.1 | 1.0 | 2.3 | 12.5 | 0.4 | 5.9 | 0.23 |
| Timothy Grass | 70.0 | 2.2 | 3.4 | 8.0 | 16.3 | 1.1 | 2.1 | 16.0 | 0.5 | 8.2 | 0.28 |
| Upland Grasses, average | 70.0 | 2.1 | 3.4 | 10.1 | 13.4 | 1.0 | 1.9 | 14.2 | 0.5 | 8.1 | 0.23 |
| Fodder Rye | 76.0 | 1.6 | 3.3 | 7.9 | 10.4 | 0.8 | 1.9 | 11.0 | 0.4 | 6.3 | 0.30 |
| Fodder Oats | 81.0 | 1.4 | 2.3 | 6.5 | 8.3 | 0.5 | 1.3 | 8.9 | 0.2 | 7.2 | 0.15 |
| Fodder Corn | 82.9 | 1.3 | 1.2 | 5.2 | 8.8 | 0.6 | 0.7 | 8.4 | 0.3 | 13.0 | 0.12 |
| Sorghum | 77.3 | 1.1 | 2.5 | 6.7 | 11.7 | 0.7 | 1.6 | 11.9 | 0.3 | 7.4 | 0.19 |
| Hungarian, in blossom | 75.0 | 1.8 | 3.1 | 8.5 | 10.9 | 0.7 | 1.8 | 11.8 | 0.3 | 7.0 | 0.20 |
| Pasture Clover, young | 83.0 | 1.5 | 4.6 | 2.3 | 7.2 | 0.9 | 3.6 | 7.4 | 0.6 | 2.5 | 0.25 |
| Red Clover, before blossom | 83.0 | 1.5 | 3.3 | 4.5 | 7.0 | 0.7 | 2.3 | 7.4 | 0.5 | 3.8 | 0.19 |
| " " in full blossom | 80.4 | 1.3 | 3.0 | 5.8 | 8.9 | 0.6 | 1.7 | 8.7 | 0.4 | 5.7 | 0.17 |
| White Clover, in blossom | 80.5 | 2.0 | 3.5 | 6.0 | 7.2 | 0.8 | 2.2 | 7.9 | 0.5 | 4.2 | 0.19 |
| Alsike Clover, at beginning of blossom | 85.0 | 1.5 | 3.3 | 4.5 | 5.1 | 0.6 | 2.1 | 5.8 | 0.4 | 3.2 | 0.17 |
| Lucerne, begi'g of blossom | 74.0 | 2.0 | 4.5 | 9.5 | 9.2 | 0.8 | 3.2 | 9.1 | 0.3 | 3.1 | 0.23 |
| Fodder Vetch, at beginning of blossom | 82.0 | 1.8 | 3.5 | 5.5 | 6.6 | 0.6 | 2.5 | 6 7 | 0.3 | 3.0 | 0.18 |
| Fodder Peas in blossom | 81.5 | 1.5 | 3.2 | 5.6 | 7.6 | 0.6 | 2.2 | 7.4 | 0.3 | 3.7 | 0.18 |
| Buckwheat in blossom | 85.0 | 1.4 | 2.4 | 4.2 | 6.4 | 0.6 | 1.5 | 6.6 | 0.4 | 5.1 | 0.14 |
| Fodder Cabbage | 84.7 | 1.6 | 2.5 | 2.4 | 8.1 | 0.7 | 1.8 | 8.2 | 0.4 | 5.2 | 0.17 |
| Carrot Leaves | 82.2 | 3.6 | 3.2 | 3.0 | 7.1 | 1.0 | 2.2 | 7.0 | 0.5 | 3.8 | 0.18 |
| Rutabaga Leaves | 88.4 | 2 3 | 2.1 | 1.6 | 5.2 | 0.5 | 1.5 | 5.1 | 0.3 | 3 9 | 0.12 |
| Fermented Corn Fodder | 78.6 | 1.7 | 1.2 | 8.4 | 9.0 | 1.1 | 0.7 | 10.4 | 0.5 | 16.6 | 0.15 |
| III. STRAW. | | | | | | | | | | | |
| Winter Wheat | 14.3 | 4.6 | 3.0 | 40.0 | 36.9 | 1.2 | 0.8 | 35.6 | 0.4 | 45.8 | 0.37 |
| Winter Rye | 14.3 | 4.1 | 3.0 | 44.0 | 33.3 | 1.3 | 0.8 | 36.5 | 0.4 | 46.9 | 0.35 |
| Summer Barley | 14.3 | 4.1 | 3.5 | 40.0 | 36.7 | 1.4 | 1.3 | 40.6 | 0.5 | 32.2 | 0.44 |
| Oat | 14.3 | 4.0 | 4.0 | 39.5 | 36.2 | 2.0 | 1.4 | 40.1 | 0.7 | 29.9 | 0.45 |
| Fodder Vetch | 16.0 | 4.5 | 7.5 | 42.0 | 29.0 | 1.0 | 3.4 | 31.9 | 0.5 | 9.8 | 0.46 |
| Pea | 16.0 | 4.5 | 6.5 | 38.0 | 34.0 | 1.0 | 2.9 | 33.4 | 0.5 | 12.0 | 0.44 |
| Field Bean | 16.0 | 4.6 | 10.2 | 34.0 | 34.2 | 1.0 | 5.0 | 35.2 | 0.5 | 7.3 | 0.55 |
| Seed Clover | 16.0 | 5.6 | 9.4 | 42.0 | 25.0 | 2.0 | 4.2 | 28.5 | 1.0 | 7.4 | 0.49 |
| Corn Stalks | 15.0 | 4.2 | 3.0 | 40.0 | 36.7 | 1.0 | 1.1 | 37.0 | 0.3 | 34.4 | 0.39 |
| CHAFF, HULLS, ETC. | | | | | | | | | | | |
| Wheat | 14.3 | 9.2 | 4.3 | 36.0 | 34.6 | 1.4 | 1.4 | 32.8 | 0.4 | 24.1 | 0.37 |
| Rye | 14.3 | 7.5 | 3.6 | 43.5 | 29.9 | 1.2 | 1.1 | 34.9 | 0.4 | 32.6 | 0.37 |
| Oats | 14.3 | 10.0 | 4.0 | 31.0 | 36.2 | 1.5 | 1.6 | 36.6 | 0.6 | 23.8 | 0.39 |
| Barley | 14.3 | 13.0 | 3.0 | 30.0 | 38.2 | 1.5 | 1.2 | 35.0 | 0.6 | 31.4 | 0.38 |
| Pea | 15.0 | 6.0 | 8.1 | 32.0 | 36.9 | 2.0 | 4.0 | 36.2 | 1.2 | 9.8 | 0.55 |
| Bean | 15.0 | 5.5 | 10.5 | 33.0 | 34.0 | 2.0 | 5.1 | 34.7 | 1.2 | 7.4 | 0.53 |
| Corn Cobs | 14.0 | 2.8 | 1.4 | 37.8 | 42.6 | 1.4 | 0.6 | 41.7 | 0.4 | 71.2 | 0.41 |
| ROOTS AND TUBERS. | | | | | | | | | | | |
| Potatoes | 75.0 | 0.9 | 1.1 | 1.1 | 21.7 | 0.2 | 1.1 | 22.8 | 0.2 | 21.6 | 0.26 |
| Jerusalem Artichokes | 80.0 | 1.0 | 2.0 | 1.3 | 15.5 | 0.2 | 2.0 | 16.8 | 0.2 | 8.7 | 0.24 |
| Fodder Beets | 88.0 | 0.8 | 0.5 | 0.9 | 9.7 | 0.1 | 0.5 | 10.6 | 0.1 | 21.7 | 0.12 |
| Sugar Beets | 81.5 | 0.7 | 1.0 | 1.3 | 15.4 | 0.1 | 1.0 | 16.7 | 0.1 | 17.0 | 0.19 |
| Carrots | 85.0 | 0.9 | 1.4 | 1.7 | 10.8 | 0.2 | 1.4 | 12.5 | 0.2 | 9.3 | 0.18 |
| Rutabagas | 87.0 | 1.0 | 1.3 | 1.1 | 9.5 | 0.1 | 1.3 | 10.6 | 0.1 | 8.3 | 0.15 |
| Turnips | 92.0 | 0.7 | 1.1 | 0.8 | 5.3 | 0.1 | 1.1 | 6.1 | 0.1 | 5.8 | 0.11 |
| Parsnips | 83.3 | 0.7 | 1.6 | 1.0 | 10.2 | 0.2 | 1.6 | 11.2 | 0.2 | 7.3 | 0.18 |
| GRAINS AND FRUITS. | | | | | | | | | | | |
| Wheat | 14.4 | 1.7 | 13.0 | 3.0 | 66.4 | 1.5 | 11.7 | 61.3 | 1.2 | 5.8 | 1.13 |
| Rye | 14.3 | 1.8 | 11.0 | 3.5 | 67.4 | 2.0 | 9.9 | 65.4 | 1.6 | 7.0 | 1.08 |
| Barley | 14.3 | 2.2 | 10.0 | 7.1 | 63.9 | 2.5 | 8 0 | 58.9 | 1.7 | 7.9 | 0.95 |
| Oats | 14.3 | 2.7 | 12.0 | 9.3 | 55.7 | 6.0 | 9.0 | 43.3 | 4.7 | 6.1 | 0.98 |
| Indian Corn | 14.4 | 1.5 | 10.0 | 5.5 | 62.1 | 6.5 | 8.4 | 60.6 | 4.8 | 8.6 | 1.11 |
| Buckwheat | 14.0 | 1.8 | 9.0 | 15.0 | 58.7 | 1.5 | 6.8 | 47.0 | 1.2 | 7.4 | 0.77 |
| Rice, hulled | 14.0 | 0.5 | 7.7 | 2.2 | 75.2 | 0.4 | 6.9 | 72.7 | 0.3 | 10.7 | 0.96 |
| Peas | 14.3 | 2.4 | 22.4 | 6.4 | 52.5 | 2.0 | 20.2 | 54.4 | 1.7 | 2.9 | 1.44 |
| Field Beans | 14.5 | 3.1 | 25.5 | 9.4 | 45.9 | 1.6 | 23.0 | 50.2 | 1.4 | 2.3 | 1.51 |
| Linseed | 12.3 | 3.4 | 20.5 | 7.2 | 19.6 | 37.0 | 17.2 | 18.9 | 35.2 | .... | 2.47 |
| Rape seed | 11.8 | 3.9 | 19.4 | 10.3 | 12.1 | 42.5 | 15.5 | 10.2 | 40.4 | .... | 2.55 |
| Hemp seed | 12.2 | 4.5 | 16.3 | 12.1 | 21.3 | 33.6 | 12.2 | 16.2 | 30.2 | .... | 2.01 |
| Cotton seed | 7.7 | 7.8 | 22.8 | 16.0 | 15.4 | 30.3 | 17.1 | 14.7 | 27.3 | .... | 2.08 |
| Apples and Pears | 83.1 | 0.4 | 0.4 | 4.3 | 11.8 | .... | 0.3 | 12.9 | .... | 43.0 | 0.13 |
| Pumpkins | 89.1 | 1.0 | 0.6 | 2 7 | 6.5 | 0.1 | 0.4 | 7.1 | 0.1 | 18.4 | 0.08 |
| IV. MANUFACTURING AND WASTE PRODUCTS, ETC. | | | | | | | | | | | |
| Sugar Beet Cake | 70.0 | 3.4 | 1.8 | 6.3 | 18.3 | 0.2 | 1.8 | 24.6 | 0.2 | 13.9 | 0.30 |
| Potato, Residue from | 86.0 | 0.4 | 0.8 | 2.0 | 11.7 | 0.1 | 0.8 | 13.7 | 0.1 | 17.4 | 0.16 |
| Rye, Manufacture of | 70.0 | 0.8 | 6.1 | 2.7 | 18.9 | 1.5 | 5.2 | 18.1 | 1.2 | 4.1 | 0.44 |
| Wheat, Starch | 74.0 | 0.6 | 4.4 | 3.4 | 15.4 | 2.2 | 3.7 | 15.1 | 1.8 | 5.3 | 0.37 |
| Brewers' Grains | 76.6 | 1.2 | 4.9 | 5.2 | 11.0 | 1.1 | 3.9 | 10.8 | 0.8 | 3.4 | 0.30 |
| Malt Sprouts | 10.1 | 7.2 | 17.6 | 14.3 | 48.7 | 2.1 | 12.8 | 51.6 | 1.7 | 4.7 | 1.09 |
| Wheat Bran, fine | 13.1 | 5.4 | 14.0 | 8.7 | 55.0 | 3.8 | 11.8 | 44.4 | 3.0 | 4.4 | 1.04 |
| " " coarse | 12.9 | 6.6 | 15.0 | 10.1 | 52.2 | 3.2 | 12.6 | 42.7 | 2.6 | 3.9 | 1.04 |
| Rye Bran | 12.5 | 5.2 | 14.5 | 5.7 | 58.6 | 4.5 | 12.2 | 46.2 | 3.6 | 4.5 | 1.10 |
| Wheat Meal | 11 5 | 3.0 | 13.9 | 4.8 | 63.5 | 3.3 | 10.8 | 54.0 | 2 9 | 5.7 | 1.08 |
| Indian Corn Bran | 11.8 | 3.4 | 10.2 | 9.0 | 61.8 | 3.8 | 7.9 | 56.6 | 3.4 | 8.2 | 0.99 |
| Buckwheat Bran | 14.0 | 3.4 | 17.1 | 14.7 | 46.4 | 4.4 | 13.5 | 44.0 | 3.9 | 4.0 | 1.15 |
| Rice Meal | 9.9 | 10.6 | 10.9 | 11.1 | 47.6 | 9.9 | 8.6 | 47.2 | 8.8 | 8.0 | 1.16 |
| Linseed Cake | 12.2 | 8.8 | 29.5 | 9.7 | 29.9 | 9.9 | 24.8 | 27.5 | 8.9 | 2.0 | 1.72 |
| Linseed Meal (extracted) | 9.7 | 7.3 | 33.2 | 8.8 | 33.7 | 2.3 | 27.8 | 33.9 | 2.1 | 1.4 | 1.61 |
| Palm Nut Cake | 10.5 | 4.2 | 16.9 | 17.4 | 41.0 | 10.0 | 16.1 | 55.4 | 9.5 | 4.9 | 1.61 |
| Cotton-seed Cake | 11.3 | 6.4 | 23.6 | 22.1 | 30.5 | 6.1 | 17.5 | 14.9 | 5.5 | 1.7 | 1.14 |
| Cotton-seed Cake, decorti'd | 11.2 | 7.6 | 38.8 | 9.2 | 19.5 | 13.7 | 31.0 | 18.3 | 12.3 | 1.6 | 2.07 |
| Flesh Meal | 11.5 | 3.7 | 72.8 | .... | .... | 12.0 | 69.2 | .... | 11.2 | 0.4 | 3.54 |
| Dried Blood | 12.0 | 4.1 | 80.8 | .... | 2.6 | 0.5 | 54.1 | 2.6 | 0.5 | .... | 2.32 |
| Cow's Milk | 87.5 | 0.7 | 3.2 | .... | 5.0 | 3.6 | 3.2 | 5.0 | 3.6 | 4.4 | 0.31 |
| Skimmed Milk | 90.0 | 0.8 | 3.5 | .... | 5.0 | 0.7 | 3.5 | 5.0 | 0.7 | 1.9 | 0 23 |
| Buttermilk | 90.1 | 0.5 | 3.0 | .... | 5.4 | 1.0 | 3.0 | 5.4 | 1.0 | 2.6 | 0.22 |
| Condensed Milk | 21.5 | 2.5 | 10.2 | .... | 52.9 | 12.9 | 10.2 | 52.9 | 12.9 | 8.3 | 1.48 |
| Whey | 93.6 | 0.7 | 1 0 | .... | 5.1 | 0.6 | 1.0 | 5.1 | 0.6 | 6.6 | 0.11 |
| Cream | 62.0 | 0.6 | 2.7 | .... | 2.9 | 31.8 | 2.7 | 2.9 | 31.8 | 30.5 | 1.54 |

### Explanation of the Table.

The table herewith is taken, with some slight alterations, from a much larger one by Wolff, in the "German Farmers' Almanac," frequently referred to in these columns.* These figures, from European products, mostly German, represent the average results of many hundreds of analyses, but they enable American farmers to estimate the probable composition of their own feeding stuffs. Tables showing variations in composition of the same kinds of foods, and results of analyses of American products, are in preparation for a future issue. So far as analyses made up to the present time show, the American and European products in general agree pretty closely. The most marked exceptions are in grasses and hays, ours averaging poorer than the European, probably because of poorer manuring and much poorer culture.

WATER.—The figures in the first column give the number of pounds of water in 100 lbs. Thus, 100 lbs. of young grass contain from 75 to 80 lbs. of water, while 100 lbs. of dry hay contain only about 14½ lbs. In 100 lbs. of bran there are about 13 lbs. of water, while 100 lbs. of potatoes contain 75 lbs. of water, and 100 lbs. of turnips 92 lbs. of water. The bran thus has (100—13) about 87 per cent, or seven-eighths, of dry substance; the potatoes 25 per cent, or one-fourth; and the turnips only 8 per cent, or one-twelfth dry matter.

ASH OR MINERAL MATTERS.—The mineral matters—potash, soda, lime, phosphoric acid, etc.—which remain as ashes when the material is burned, vary from ¾ lb. in 100 lbs of milk, to from 5 to 8 lbs. in 100 lbs. of bran or linseed-cake. These substances are necessary for supporting animal life, but there is generally an abundance of them in all the foods used on the farm.

ORGANIC SUBSTANCE, TOTAL AND DIGESTIBLE.—Columns 2 to 6 give the *Albuminoids*, *Carbohydrates*, and *Fats*, which together make up the *combustible* or *Organic Substance*. Columns 7, 8, and 9, give the amounts of these that are *digestible*. The figures represent general averages as shown by the results of probably more than 1,200 actual feeding trials, with oxen, cows, horses, sheep, and swine. The digestibility varies considerably, even in the same kind of food. The digestibility of some of the materials, as Hungarian grass, which have not been tested, is calculated from the known digestibility of similar foods.

NUTRITIVE RATIO.—The "nutritive ratio" expresses the ratio of digestible albuminoids to digestible carbohydrates and fats (each pound of fats being assumed equal to 2.5 of carbohydrates); that is to say, it shows the number of pounds of digestible carbohydrates to one pound of digestible albuminoids. For instance: The "poor" hay contains 1 lb. of albuminoids to 10.6 lbs. of digestible carbohydrates. The nutritive ratio is 1:10.6. The "very good" hay has 1 of albuminoids to every 6.1 of carbohydrates. The ratio is 1:6.1. Linseed-cake and cotton-seed cake are rich in digestible albuminoids, having 1 lb. to every 2 lbs. of carbohydrates, while straw is very poor, the nutritive rate being 1 to 30, or even 1 to 45. The value of a food in practice depends mainly upon the amounts and proportions of digestible ingredients it contains, and the way it is fed. The "as1:" at head of column, "Nutritive Ratio," means *as one to*—.

THE MONEY VALUES OF THE FOODS in the table are calculated by assigning a certain price to each pound of digestible ingredients. The prices assumed by Wolff for the German market in 1880, are, for digestible albuminoids and fats, each 4½ cents per lb., and for carbohydrates ⁹/₁₀ cent per lb. They vary a little, but not widely, from the values in many of our American markets. Of course, these values are relative, and apply only when properly fed. Doubtless both the prices-current in our markets, and the intrinsic facts of the case would require a revision of these rates to make the valuations entirely correct with us. Nor can such computations be absolutely accurate at best, but they do give a general idea of the comparative values of the materials as food for stock *when properly used*.

W. O. ATWATER.

[The above table, which Professor Atwater has translated, and with the explanatory notes put in a clear form, will, we think, when carefully considered, furnish a fund of information of great value to many of our readers. There is *food* for thought for the winter evenings in the *feeding* stuffs, the composition of which is given in a handy form.—ED.]

*Mentzel & von Lengerke, Landw. Kalender, 1880. Published by Wiegandt, Hempel & Parey, Berlin, Prussia. In answer to numerous inquiries, we may say that it may be obtained direct from the publishers in Berlin, or through any importer of foreign books in this country. The cost in Germany is 2½ marks (about 62 cts.); here, including duties, etc., not far from 90 cents. [EDS.]

## How to Make Splint Baskets.

In the winter season a stock of baskets for use in the barn, the stable, or the field, may be very easily made. The best material is splints of hickory, oak, black ash, or any other wood that can be separated into layers. The best timber is the butt of a straight-grained young tree, cut about eight feet long. In clearing timber land, it is common to select these butts and sell them to basket-makers by the cord, at two or three times the value of common timber. The butts are split into narrow pieces, which have the annual layers arranged conveniently for being rived into splints. The manner of splitting is shown at figure 1. These strips are split again, if necessary to bring the splints to a proper size for working, which is 1¼ inch or 2 inches for large baskets; the smaller strips, down to half an inch, may be used for hand-baskets, strawberries, etc., or for binding the edges of larger baskets. The split pieces are steeped in water for some days, to loosen

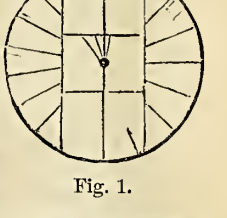
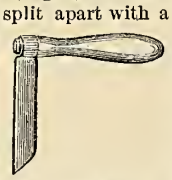


Fig. 1.

Fig. 2.—LOOSENING THE FIBRES.

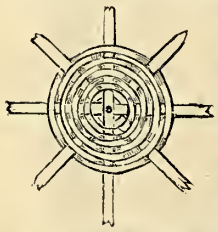
the different layers of the wood, when they are beaten with a mallet upon a block, fig. 2, until the layers are separated and can be split apart with a knife, fig. 3, attached to a handle at right angles, so that it may be used conveniently for splitting, fig. 4. The basket is begun by weaving a few pieces for the bottom as shown in figure 5; the bottom being usually hollowed inwards, it is necessary to bend the strips at first downwards, and then upwards, to get the desired hollow-shaped bottom, as seen in figure 6. The strips are interlaced in the usual manner, the loose ends being left inside until the finish, when they are trimmed off, and the sides are then built up to the top. Pieces of the refuse wood,



3.—THE KNIFE.

Fig. 4.—METHOD OF SPLITTING.

first steeped for several days in water, are bent into circles and fitted, one on the inside, and the other on the outside of the top of the basket. These are bound by narrow strips, and are strengthened by turning over some of the splints and binding these with the hoops. The strips are wound around the top very firmly, and an opening is left for a handle on each side, as shown at figure 7. Sometimes wooden handles are made as at figures 8 and 9, and fixed into the sides. These are trimmed out of waste pieces, steeped in water until pliable, and bent into shape. A basket, finished as shown at figure 7, 20 inches wide at the top, and 22 inches deep, and holding a bushel, is usually worth 60 cts. Such a basket is very useful for many purposes about the barns and stables, and in husking corn.



5.—BOTTOM STARTED.

A splint-basket for gathering leaves is shown at figure 10, this should be 4 feet long by about 3 feet wide, and will also be found useful for many other purposes about a farm. Baskets, like this, are usually sold for 75 cts. each; a water-cress basket holding about half a peck, 12 inches deep, and about 7 wide at the top, of the shape shown at figure 11, is worth $8 a hundred. Small baskets, used in some localities for marketing strawberries, are made of the shape shown at figure 12; these hold about half a pint, and are 4 inches deep, 3 inches wide at the top, and 2 inches wide at the bottom. The small baskets are made of the narrow refuse splints, and thus the whole of the wood is worked up, even the knotty central portions serve to make handles or hoops for the larger sized baskets.

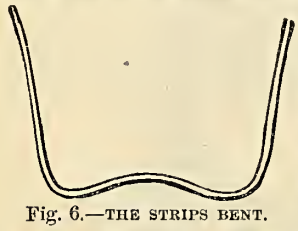


Fig. 6.—THE STRIPS BENT.

## Southern Cow-Peas.

In April, 1876, we gave the results of much labor expended in an attempt to ascertain what the plant cultivated all through the Southern States, really was. That "Pea" was a misnomer was readily shown by the seeds, which more resembled the bean, but it is not a bean, but a *Vigna*. Still, the name is thoroughly fixed, and if spoken of as the "Cow-Pea"—and not simply "Pea"—the name will be sufficiently distinctive. As stated in the article referred to, we had the seeds of some 20 named varieties of Cow-Pea, quite as distinct in appearance as the varieties of the garden bean, and that to speak of *the* Cow-Pea was not sufficiently definite, amid so many different kinds the variety should be named. It is very singular that with an exotic plant, so widely cultivated throughout so many States, there should be no knowledge, at least no recorded knowledge, so far as we can learn, of its origin or the method of its introduction. So far as we know, our article, in 1876, was the first attempt to ascertain the botanical relationship of the Cow-Pea. Its place in the agriculture of the Southern States is not well fixed. Every intelligent southern cultivator is satisfied that the Cow-Pea is to him what Clover is to the northern farmer, both as to its value as a fodder crop and as a renovator of the soil when plowed under. But while this was the general belief, we had no positive knowledge of the value of the plant until recently. Our friend, Prof. Albert R. LeDoux, the Chemist to the North Carolina Department of Agriculture, and Director of the Experiment Station, has made a most valuable contribution to scientific agriculture in making analyses of some varieties of the Cow-Pea, which are given in his Report for 1879. Referring to this excellent Report for the analyses in full, we may say that they sustain the popular estimate in which

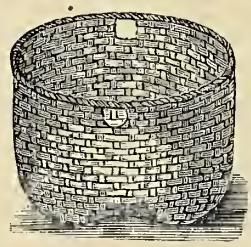


Fig. 7.—COMPLETE BASKET.

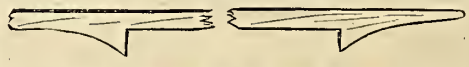


Fig. 8.—SHAPE OF WOODEN HANDLE.

the plant is held. Taking the results as shown by several analyses, Prof. LeDoux places the nutritive value of the Cow-Pea as compared with similar articles of food, taking the Bean as the unit, thus: 1, Field Bean; 2, Yellow Cow-Pea; 3, Black Cow-Pea; 4, Garden Pea; 5, Wheat; 6, Maize (Indian Corn). The analyses of the vines of Cow-Pea show their nutritive value, taking Clover as the standard, to be: 1, Red Clover; 2, Timothy; 3, Cow-Pea Vines; 4, Corn Fodder. The vines, being largely employed for turning under as a fertilizer (in some localities two crops being turned under in one season), analyses show that as compared with Red Clover, so much used in the Northern States for this purpose, Cow-Pea vines have less potash, more soda, and more phosphoric acid and less ammonia. The excess of soda is due to the land upon which

Fig. 9.

Fig. 10.—BASKET FOR LEAVES.

they were grown; upon other soils it would be replaced by potash. In thus giving us some positive knowledge concerning the Cow-Pea, Prof. LeDoux has done a most valuable work, and we trust that he may continue his investigations. Our own experiments with the plants, and that reported from Monmouth Co., N. J., in "Among the Farmers," Nov., 1877, show that the usefulness of the Cow-Peas is not confined to the Southern States; for all purposes, except ripening a full crop of seed, it may be grown successfully in the Northern States.

## Gather the Fallen Leaves.

If there is one thing of which the gardener is not likely to have too much, it is leaves, and the time expended in gathering them, is time well employed. Their value is admitted in a general way, but few are aware how valuable they are—Let us see. If we would know the best covering for half hardy plants, and for tender seedlings, go to nature. In her gardening she uses leaves; how lightly they lie over the most delicate plants, their elasticity, or springiness, keeping the heaviest snow from doing injury. If there is danger that the leaves may blow away from the bed lay brush upon them, or, in the absence of this, scatter a little earth over them; anything to hold them until the upper *surface* leaves become flattened down, and they are safe. Then for hot-beds, mixed with an equal bulk, or one half their bulk of manure, they give a more useful and more lasting heat, than clear manure. In cold frames, if plants such as violets, or Holland Bulbs, are in them, to be forced into an early spring bloom, fill up the frame with leaves, and cover with boards. In the spring remove the boards and leaves, put on the sashes, and bloom will soon follow. If cold frames are to be sown in early spring, fill up with leaves, cover with boards, and the ground, when wanted, will be unfrozen. In the stable, the pig-sty, the sheep-barn, or wherever animals are wintered, no more cleanly or comfortable bedding than leaves can be given. These leaves, when saturated with urine, form a rich addition to the compost heap. Why? There is a general notion that leaves make good manure, while few think that their value is due to the ashes they contain. They are very rich in ash. Fallen leaves, when burned, give from four to five times as much ashes, as the heart-wood of the tree which bore them. "But we do not burn the leaves"—Yes we do—practically. In the compost the decay is a slow combustion; the whole texture of the leaf is broken up, and the ash, not having been exposed to the heat of burning, is really in a better condition as a fertilizer, than ordinary wood ashes. Leaves are often spoken of—and truly—as the lungs of the tree. It is not far out of the way to liken the leaves to salt works. In salt works a weak brine from salt-springs, or from the sea, is exposed to the heat of the sun in shallow tanks, and when thus concentrated by evaporation, is transferred to other tanks or kettles where, by artificial heat, the remaining water is evaporated, and the solid salt remains. The roots of the tree take up water which has several of the solid matters of the soil in solution—a weak—very weak—"brine," as it were. The use of some of these matters we know, others, so far as known, are useless to the tree—but are still taken up. This solution from the soil at length reaches the leaves, where most of the water passes off into the air—slowly, but as certainly as if it had been boiled in a salt kettle, while the solid matter mostly remains in the leaves. When the leaves are burned, this solid matter appears as ash. That this is so—that the large amount of ash in the leaves is due to the evaporation of the water from the soil, is seen by the difference in the amount of ash in summer and autumn leaves. Oak leaves in autumn contain nearly twice as much, and Beech leaves contain more than twice as much ash, as they did in summer. The richness of the fallen leaves in ash explains why the surface soil of the forest is so rich. The roots have been engaged in bringing up the soluble matters from below, and these, by the decay of the leaves, have been accumulating upon the surface. When a gardener wishes to make a rich compost, he uses largely of woods-earth, which consists of decayed leaves. Evidently fallen leaves are too valuable to be neglected, and should be collected by all who desire a rich, valuable, and easily obtained mulch and fertilizer for their soil.

Fig. 11.

Fig. 12.

## The Jack-Ass, or Mule Rabbit.

The traveller across the broad and arid plains of Western Texas, New Mexico, and Arizona, is very sure to become acquainted with two animals—the Coyote or Prairie Wolf, and the Jack-ass Rabbit. These mammals are almost certainly met with every day, regardless of the distance from water and the scarcity of vegetation. Like all others of our so-called Rabbits, this one is a *Hare*, and like other hares makes no burrow. It is one of the largest hares, measuring about two feet from nose to tail. Its ears are noticably long, a peculiarity which has caused the common names given above to be applied to it., they are about one-third longer than the head, and correspondingly broad, the long hairs which fringe them on their outer margin making them appear much larger than they really are. The general color of the animal is a yellowish gray, blotched, and lined with black, the nape is unusually black, all the under parts are whitish, the tail, less than two inches long, is black above and whitish beneath The legs are very long and powerful, and it is upon the long leaps which these enable it to make, that the animal depends for its safety. This hare extends from Western Texas and Northern Mexico northward, probably to Oregon, but has not yet been found in California. The scientific name for the animal is *Lepus callotis*. The flesh of this hare is dry and hard, but palatable, except when it is shot in those arid localities where there is little other vegetation than the "Creasote Bush" (*Larrea Mexicana*) This shrub has a most repulsive odor when handled, and when burned fills the air with a stench that is almost intolerable. When the animal has no other food, and is obliged to browse upon this, its flesh is hardly edible. Though it brings forth but two or three young at a time, it is quite abundant; it can easily escape its chief enemy, the Prairie Wolf, by its fleetness, and it avoids the large hawks, which sometimes pursue it, by crouching behind a prickly Cactus. When alarmed, it starts up with enormous leaps, and goes off with most astonishing bounds, its long, elevated ears giving the animal the appearance of being much greater than its real size, and fully sustaining the aptness of its common names. A story is told in Texas of a newly-arrived Irish immigrant, who was making his way through the settled portions to some locality further West. Seeing a field from which the corn had been harvested, and from which the farmer was gathering a fruit he had never seen —the pumpkin, the immigrant asked: "And what's thim you have there, now?"—The farmer, thinking he was being quizzed, answered in a similar manner: "Them's mule's eggs."—"An' how much are they?" asked Pat.—"Only two dollars," replied the farmer. Pat bought an "egg," paid his money, and taking his treasure in front of him on his saddle, started off his pony on a gallop to overtake his party. Pat's Mexican pony, after its kind, made a sudden start, and down went the pumpkin. The pony was alarmed by the sudden leaping up of a Jack-ass Rabbit, as it went lopeing over the prairie, clearing the bushes in its bounds, and waving its long ears as if in derision. Pat started at full run, shouting: "Stop that mule! stop my mule." Those who remember the impression of great size made by this animal as he leaps from you, will not think Pat so far out of the way when he mistook it for a mule which had escaped from his "egg." While most wild animals disappear as a country becomes settled, hares and a few others do not, but remain apparently to avail themselves of the more abundant food which cultivated fields afford, and even increase, often becoming a pest to the farmer. In some localities, the Jack-ass Rabbit is very destructive to farm crops, and we have had several inquiries as to the methods of trapping or otherwise disposing of them. Our own experience being confined to shooting them, we some time ago asked in a "Basket Item," for other means of destroying them. This brought out an interesting letter from Mr. W. C. Schenck, Owyhee Co., Idaho, in which Territory they are so abundant, as to be exceedingly destructive to the grain, and other crops. The method with the Idaho farmers is, to build around the field a rabbit-proof fence, about two feet high. The material for the fence is generally "Sage-brush," so abundant throughout the far west. At intervals of about a rod, a hole is left in the bottom of the fence, just large enough to allow a rabbit to pass through. Just inside of the fence, and opposite each opening, a pit three or four feet deep is dug; this pit is covered by a trap-door nicely balanced, so that when a rabbit passes the center, it tips and lets the animal drop into the pit, from which it cannot escape, but must wait until disposed of. Mr. S. states that a farmer of his acquaintance caught, in this manner, as many as 400 rabbits in a single day, thus not only saving his crop, but he received two cents for each pair of ears, the bounty paid by the county in which he lives. If all the farmers could do as well as this, the Jack-ass Rabbit would become scarce.

THE JACK-ASS, OR MULE RABBIT.—(*Lepus callotis.*)

## Weighing Sheep and Calves.

In addition to the method of weighing live animals described in the November number, page 463, we give another, sent by Mr. J. M. Brotherton, Dover, N. J., who has practised it for a number of years, and finds it the best method for small animals. Instead of the usual tying together of the feet of the sheep or calf, hooking the steelyards to the fastening cord, or strap, and stringing up the

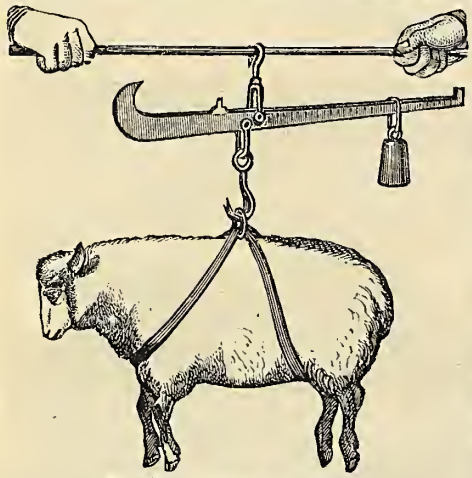


Fig. 1.—WEIGHING A SHEEP.

creature by its legs, the strap is passed below the neck, and in front of the hind legs, and the parts of the strap brought together over the back, when they are hooked to the steelyard. The animal is raised clear from the ground, and is weighed in a standing position, much to its comfort. The method is shown in the illustration (fig. 1). "One thing suggests another," and Mr. Brotherton's method brings to mind one which we practised on the farm years ago. Instead of putting the rope or strap in *front* of the animal's hind legs, we passed it *behind*

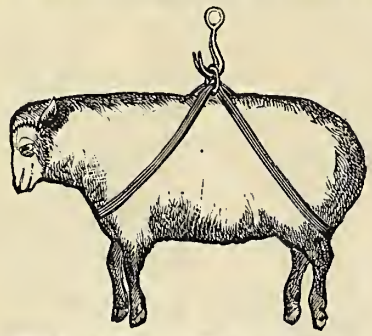


Fig. 2.—METHOD FOR SMALL SHEEP.

them, as shown in figure 2, and brought the two parts together at the top, as in the first case. The strap was tied of the right length to make a loop, and slipped first over the head, and then around the back of the hind legs, all of which was the work of an instant, and the animal, raised into the air, was weighed before it thought of kicking.

## Among the Farmers.—No. 47.

BY ONE OF THEM.

I know of no subject exciting so much thought among farmers just now, as the general one of milk, and among most farmers, though at first they may have little to say, after a while, *thought* means a good deal of talk, which will have its results. We are just beginning to talk it over, and I have questions asked me, which I cannot answer, and which, so far as I can find, Mr. Willard and "Prof." Arnold, and Dr. Sturtevant are either silent about, or what they say is not entirely satisfactory.

### What Starts the Milk Souring?

Does the milk begin to sour as soon as drawn? Not perceptibly. As I understand it, the action is explained thus: Milk consists of water, about 87 per cent; cheese, 3½ per cent; butter, 4 per cent; milk-sugar, 4½, and a little soda and ash. Of these the oily portion is by far the most stable. Milk-sugar in solution with soluble nitrogenous substances the least so, especially if the solution is alkaline, and milk is decidedly alkaline. When the air comes in contact with such a solution, it acts at once upon the milk-sugar, converting it into lactic acid. This action is most rapid when the milk is warm, and at a temperature of 80° or 90° the alkaline character disappears very quickly, because of the change of the sugar into lactic acid, thus neutralizing the soda. We all know how soon milk loses that peculiar sweet flavor of new milk. This indicates the necessity of speedily cooling it, as low at least as to 60°, at which temperature this souring effect is much less active. The acid formed by the oxidizing of the milk-sugar is taken care of by the free soda, a small quantity of which will neutralize a much larger quantity of the acid. So we do not observe that the milk is growing sour for some time, but only that it is no longer so sweet.

When milk is shut away from the action of the air, does this effect cease?—No, it does not. That we can answer positively. But if the air is excluded, and a low temperature be given at the same time, the action is reduced probably to a minimum. Milk in a sealed bottle, kept at the natural temperature of the weather, though milked into the bottle and sealed at once, sours and becomes acid—almost as quickly as milk in open pans, and when opened and poured out, often has a close disagreeable odor. If cooled before bottling, and kept cool, it not only remains sweet much longer, but this odor is not developed, or only sparingly perceptible. Milk put up in bottles, as is fast coming to be the fashion, will have a disagreeable odor after standing, unless it be drawn in a most cleanly way, exposed as little as possible to the air of the stable or yard, and cooled before closing the bottle.

A few months ago we heard a good deal about

### Living Organisms

floating in the air, and being the prime cause of all fermentation and decay. How far dairymen ought to take these mythical things into account I can not tell, but though it may be all quite true—certain it is, we can not afford to keep our milk from exposure to the air. Air seems to do it more good than any thing else, except cooling; but the air must be pure.

### Effect of Impure Air on Milk.

Most odors are gaseous in their nature, and follow the laws of gaseous diffusion. One of these is that each particle of gas is constantly exerting its repulsive force towards every other particle of the same kind of gas; or, in other words, it is trying to get as far from every one of its kindred as possible. Thus odors in following this law actually travel against the wind, if not too strong, as well as, of course, in every other direction. When, therefore, any gas is set free, it at once diffuses itself all about, going as far and as fast as it can; and conversely, when by means of any absorbing substance or surface, a gas or an odor is withdrawn from any open space, other particles rush in at once and fill the space, and are in turn absorbed, their places being taken by other particles, which yield in turn to others, and so on.

### Milk as an Absorbent.

Milk is well known as a wonderfully active absorbent of odors. Butter has long been famous for the same quality. Every school-boy knows that attar of rose is prepared in Turkey by exposing thin films of butter near fresh rose leaves, just plucked, and giving off their delicious fragrance. Milk is filled with particles of butter, and it is probably due to this that it absorbs odors so actively.

There are several of the experiences of common life which indicate natural laws worth our heeding. Every farmer's wife knows that, if her milk is exposed so that it absorbs evil odors, the butter will not only be tainted, but it will not keep. Butter which absorbs the odors of filth of any kind—those of a close musty cellar, stale fish, decaying vegetables, etc.—will not keep, even though when first made it was perfect in fragrance and substance. The milk itself, which absorbs odors of the cow or stable, will sour just as quickly, and perhaps quicker, than if it had been defiled with specks of dung. While experiments show that milk carefully drawn in such cleanly stables as those of Echo Farm, or in any way free from both material and gaseous defilement, will keep sweet many hours after that drawn with only ordinary care has become unfit for use. We should not forget that

### Butter-Making Begins at the Stable.

The best butter-maker in the world will fail to get first quality butter if the cows are milked in a dirty stable. It is not long ago that a New Jersey farmer asked me how he could best market his butter, which he said was exceedingly good. He enlarged upon his high grade Alderneys and the quality of his pastures and water. Afterwards I went out to see a cow I wanted to buy, and he sat down at milking-time to let me judge of her flow.—I certainly never saw a dirtier pail of milk. Specks of dirt, dust, dandruff, hairs, etc., etc., peppered the top, and swashed about on the bottom as the pail was emptied. He got only 18 or 20 cts. for his butter, and I think it was worth no more. Does not this filth flavor the milk, the cream, and the butter?—Most assuredly it does. This is only obvious filth; the invisible and more potent volatile exhalations from the manure and the urine-saturated floors, and all the mal-odorous surroundings of most cow-stables, usually have a still greater influence. When milk is once contaminated, nothing can be done which will entirely do away with the effect. Part of the evil may be removed by thorough airing of the milk as it is cooled before setting. Shallow setting no doubt favors the removal of these odors, and aeration during churning has an important effect. But, here as in many other things, the fountain-head is the spot at which reform should be commenced. I was thinking of this important matter the other day when reading about

### The Efforts to Keep Bad Milk Out of the City.

Dr. White, with his police squad, boarded a North River steamboat which brings down milk from up the river. They used their floating specific gravity indicator, called a "Lactometer"—and all the milk in which it did not float pretty well up (95° was their standard, pure milk being 100°) was remorselessly poured into the river. This was a hard and wholesome lesson—but a great waste. It would have made a great many pigs happy, and though it is just the kind of milk we do not want sold in the City of New York. The Doctor probably knows very well that the addition of an imperceptible amount of salt would have raised his hydrometer high enough to have made the worst watered milk of the lot pass muster. The farmers and milkmen know it if he does not—one of them told me how to do it the other day. The true policy for the Health Board is, to allow no milk to be brought into the city except in sealed cans or boxes bearing the dairyman's mark, or name in full, and to allow none to come, or to be sold, except from establishments duly examined and licensed by the Board of Health, as fit places for the production of this most important aliment for the children of the city. The Inspector for the Board of Health would of course board trains, boats, or wagons, or take the milk wherever found, sample the cans, and re-seal with his own seal if need be. The samples would be analyzed carefully. Water detected, salt detected, the presence of diseased milk ascertained, etc.—and thus an oversight maintained at the consumer's end of the line, as at present. Besides, the Board would have a list of the names of every milk producer who sent as much as 40 quarts to the city, and an Inspector with power simply to *advise* in the country, and to report facts to the Board, who might at any time forbid the reception and sale of the milk of certain stables or farms, and revoke the licenses of the farmers. There is no end of pains and watchfulness to keep the Croton pure and fit to drink, and yet the drink of the babies is permitted to be sold from stables reeking with filth, drawn from cows in all stages of disease, fed upon the slops of the distillery or the refuse of the brewery, which is better fit for manure than as a milk-producing diet for cows; and this same milk is diluted with one-tenth to one-fourth part water taken from any old pump in the city, or any road-side brook or pool in the country. [Perhaps the frog found by the inspectors in one can, came there in this way.—ED.] If the good farmers who ship their

milk to New York at 1¾ to 2 cents a quart, and are conscientious to send only good milk at that, could only see what is actually sold, and could go from house to house and see the poor children who live upon it, and compare them with their own healthy rollicking babies, they would, I believe, cheerfully submit—nay, would welcome an Inspector of milk-farms and stables, and court the most rigid scrutiny of all milk shipped in sealed cans.

## A Wooden Pump for Barn-Yards.

For ordinary uses of the barn-yard, either for drawing water from cisterns, or liquid manure out of tanks, pumps made of boards or plank may be used. It is necessary to make the joints tight, which may be done by laying strips of thick paper, well steeped in tar, between the joints, also smearing the joints with tar. The joints are then clamped with screw-clamps, and well fastened with bolts passing completely through the sides, and screwed tight with washers and nuts. Strips of good pine, or spruce, one inch thick, and 6 inches wide, will serve for the barrel of the pump. A check-valve of wood or sole-leather, or of both, should be fastened at the bottom of the pump, as shown in figure 1. This valve is made of a square of sole-leather, which sits upon a small cleat all around the inside of the pump-barrel, and a square piece of hard-wood is fastened upon the upper side of the leather, to stiffen it. The valve is nailed at one side to the cleat as shown at figure 1. This is all to be fitted before the barrel is put together, or that may be put together and the valve inserted and nailed to its place at the bottom of the barrel, (A, fig. 2), after the latter is made. The draw-valve is made in precisely the same manner as the check-valve, and is fitted in a box made a little narrower at the top than at the bottom to cause it to work easily. The bottom of this box may be finished with a strip of leather around it to make it tight if thought proper. The valve-box is connected with the rod by an iron strap; the rod passes through a hole in the strap, and is fastened by means of two nuts screwed on as shown at figure 3. For a portable pump, the spout is fitted as shown in the engraving; for a fixed pump, a handle may be fitted to the top in the usual manner.

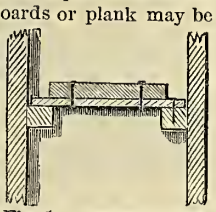


Fig. 1.—CHECK-VALVE.

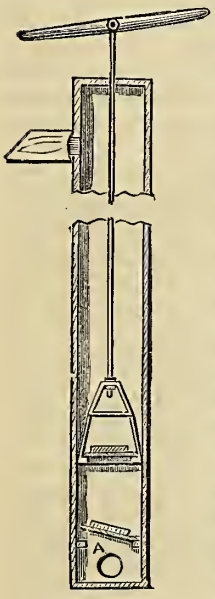


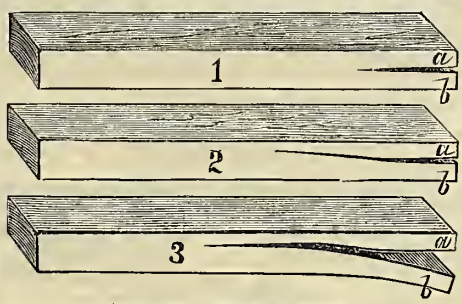
Fig. 2.

Fig. 3.

**The Value of a Pure-bred Ram.**—It is not difficult to estimate the value of a pure-bred ram in a flock. A ram will serve a flock of 50 ewes. The most close-calculating farmer will give a dollar for the service of a choice ram for one of his ewes, as he knows that the dollar is well expended. Therefore the benefit of a pure-bred ram, to the owner of a flock of 50 ewes, is at least $50 yearly for the lifetime of the ram, which may be expected to continue at least 6 or 8 years, if 2 years old when bought. Just now, when it is the business of every farmer to take advantage of the rising tide of prosperity, for which we have been waiting so anxiously, it is opportune to study over this matter and figure up how much could be made by procuring the service of a first-class ram while such animals are still to be purchased at reasonable prices.

## To Split Thin Wooden Slips.

Every one has frequent occasion to separate a thin piece of wood into two or more equal pieces by splitting it, and all know how liable it is to "run off to one side." The expert river of split shingles or staves, or barrel hoops, knows how to readily avoid this; he can easily divide into two equal parts a piece of wood only half an inch thick, though it may be 6 to 10 inches wide, and 3 or 4 feet or more in length. Any one can quickly learn and apply the principle, even to splitting a toothpick, or a match. The fibres of the wood lie nearly, not quite parallel in almost all wood. Here is the secret of making the split run down the middle, or to one side or the other, as desired. Start the opening as in figure 1. If it runs to the side, *a*, as in figure 2, hold that side of the stick firmly *straight*, and bend the side, *b*, out more or less as needed, as shown in figure 3. If this is done the ends of some of the fibres will break from the side, *b*, and adhere to *a*. If the opening turns too much towards the side, *b*, reverse the operation, and bend the *a* side ont a little. With a little care in thus bending one or the other side out, the split can be readily made to follow through the center any length of straight grained wood, even though only the thickness of paste-board. Watch the shingle worker, and you will see him turn his shingle over and over, bending the lever handle of his splitting tool now here and now there, almost every second.




SPLITTING WOODEN SLIPS.

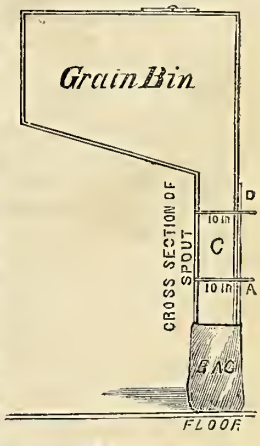
## Clearing Slough Land.

In clearing up land that is covered with tussocks of coarse grass and a tough sod, and digging out ditches to drain such land, much useless labor may be given that could be spared by skillful work. The spade is commonly used for this purpose, but as in digging dry ground this slow tool may be replaced to very great advantage by the plow and the horse-shovel. In working in swamps these more effective tools may be made available in many cases. To cut off the tussocks with grub-hoes, while they are tough in the summer time, is very hard and slow work; but if a common horse-scraper is used they can be torn up, or cut off, with the greatest ease. The scraper should be furnished with a sharp steel-cutting blade in the front, which may be riveted on, or fastened with bolts, so that it may be taken off and ground sharp. If there are wet and soft places the scraper may be drawn by a chain of sufficient length to keep the horses upon dry ground, as shown in the illustration. This plan has been tried by the writer with success, and with a great saving of time and expense; the digging of a pond 20 feet wide along the edge of a swamp, was performed with one man, a boy, a team, and a horse-shovel, as quickly as ten men could have done it with spades. In cutting tough swamp the plow may be used to break up the surface when the horse-shovel will remove the muck very fast. If the swamp is wet, and water flows in the excavation, the digging may still be done with the horse-scraper by adding to the length of the handles and using planks upon each side for the man to stand upon, and planks upon the inner side of the digging for the scraper to slide upon with its load of muck. The muck may be thrown in heaps on the side of the pond or ditches, and it will be found convenient to leave it upon one side instead of in a continuous heap, as this will greatly facilitate its final disposal in whatever way that may be.

THE HORSE-SHOVEL AT WORK.

## A Measuring Grain Bin.

Mr. Thomas Griswold, Ashtabula Co., O., sends a drawing and description of a Grain Bin, with an attachment for measuring, which he considers a great improvement over the old way, of using a half bushel. He says: "There can be no waste, as the bag or sack can be hooked upon the lower end of the spout, and when filled is easily removed. The spout requires the bin to be elevated sufficiently for the bag, when attached to the spout, to just clear the floor or a box placed for it to rest upon. In drawing from the bin, the slide marked *A* is closed, and the slide *B* is opened long enough for space *C* to fill, when *B* is closed, and *A* opened, and the grain passes into the bag. The size of the measuring chamber in the spout is 10 by 10 inches square, and 21¼ inches high. This holds just one Winchester bushel; but if a *half* bushel chamber is preferred, then the proper size would be 10 by 10 inches square, and 10¼ inches high. Of course, these measurements are for the inside of the chamber. By inserting a pane of glass in the face of the bin, or in the spout at *D*, one could always tell the quantity of grain in the bin. In constructing a bin like this, the bottom should have a rise of 5 inches to the foot. For example, a bin 6 feet from front to back, the bottom for wheat or corn should have a rise of 30 inches to secure a flow; oats require more. I do not know that anything of the kind is patented."




A MEASURING GRAIN BIN.

**Periods of Milking.**—A cow that is milked three times a day will give more milk and yield more cream than one that is milked at intervals of twelve hours. When the udder is filled a process of absorption goes on and part of the milk secreted is thus lost. It will pay to take the milk from copious milkers at intervals of eight hours as nearly as possible. A cow that is milked at five in the morning, one in the afternoon, and nine at night, will yield from ten to twenty per cent more milk and more cream than if milked twice a day.

## Care of the Feet of Sheep.

Sheep that have been pasturing in low meadows or on soft, turfy pastures, may be found to have overgrown hoofs. The hoof of a sheep has a peculiar manner of growth. If neglected, the horn of the hoof grows over the sole, turns under at the side and up at the toes; in turning under, the horn gathers under it sand, gravel, dung, or other foreign and injurious matter. The horn of the sole thus covered is kept moist, grows soft, decays, and in its decay carries poisonous matter into the vascular tissues of the foot. Inflammation occurs, and the pus caused by it, being hound in the foot by the diseased hoof, can not escape, and the inflammation spreads through the tissues, until the entire foot is involved, and sometimes drops off. When this condition happens, the matter secreted is highly poisonous, and may be communicated by the soil to the feet of healthy sheep; or at least those, which by neglect offer a breeding place for the infectious matter. This is malignant Foot-Rot, and it is the inevitable result of the foregoing sequence of neglect. By timely care this evil may be avoided. The present season is peculiarly one for caution. Every sheep should be closely examined. Surplus or loose horn should be pared off, and the toes, if too long, shortened by the use of a pair of toe-nippers, or a pair of common, carpenter's nippers with the blades sharpened. If any diseased horn is found, that should be scraped away until the unhealthy granulations under it are exposed, the foot washed with Carbolic Soap, and dressed with a paste made of Pine Tar and powdered Sulphate of Copper (Blue Vitriol). The affected sheep should be kept separated from the healthy ones, and the feet should be dressed at least once a day. If they are kept on a clean board or clay floor, and this sprinkled with air-slaked quicklime, the improvement will be the more rapid. But no recovery need be expected if the feet are exposed to mud or filth in wet yards or unclean sheds and stables.

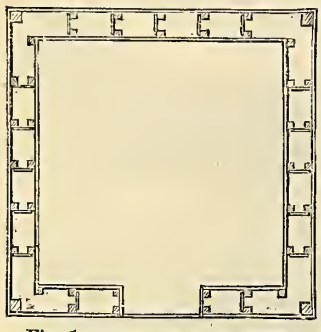


Fig. 1.—PLAN OF ICE-HOUSE.

## The Herefords in America.

That old fashioned and excellent breed, "the Hereford," so well known by its white faces and breasts, and its general dull reddish-brown color,

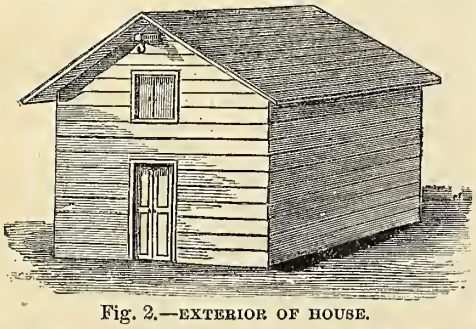


Fig. 2.—EXTERIOR OF HOUSE.

and so favorably considered by breeders and butchers, for its good feeding and meat producing qualities, has recently become very popular in parts of the West. There are among the western graziers, very different ideas, preferences, or prejudices, as to the best cattle to cross with their long-horned native herds. The aristocratic Shorthorn has so far had the preference, and bulls of this race have been extensively introduced into all the grazing regions of the West, from the Rio Grande and Texas, to the Yellowstone, and Dakota, and Montana. But the Herefords are now pushing their more popular rivals in a very brisk manner, and the demand for Hereford bulls, now largely exceeds the supply. But the supply is gradually increasing, and to enable breeders to add to their herds, many importations have been made from England, from the county of the same name as that by which the breed is designated. Illinois may be regarded as the home of the Herefords in America, and the town of Beecher, in Will County, is the center of the rapidly increasing business of breeding them. In the neighborhood of that town, which has of late become well known among stock breeders, there are numerous well established herds, and several newly begun. Besides this, an Englishman, now a resident of Will County, has started the business of importing these cattle, and has already brought over 13 head. A Nevada stock man has also imported some Herefords, and a large importation is on its way from Australia, to California. Thus the "Red Whitefaces," will soon be in a position to test the claims of their admirers; that they are equal in character, and more economical in breeding than Shorthorns.

## Ice Houses and Filling Them.

Perhaps no subject is more frequently inquired about, at this season, than Ice-Houses. Various styles to meet different requirements, are to be found in earlier volumes, as follows: In October, 1870.—Nov., 1871.—Oct., 1874.—Dec., 1875.—Dec. 1877.—Nov., 1878. These are all illustrated articles, and describe a great variety of structures, from a temporary shed, to a house so large as to contain a "cool-room surrounded by ice." It may be well to consult *all* of these numbers, and select such a form or construction of house as will best meet the circumstances and wants in each case.—[*Mem.* Any of these numbers may be obtained, post-paid, from this office, at 15 cents per number, or $1.50 for the yearly volume unbound, or $2.30 if bound.]—A small ice-house needs more care in construction than a large one. The larger the body of ice, in an ice-house, the better is its temperature preserved, and a small quantity requires very careful packing to keep it from melting. A house for storing ice to be sold, or where the consumption is large, should have good walls, made air-tight by packing and lining; the ice within needs no sawdust or other packing about it, excepting on the top. A house of this kind, 24 feet square, or larger, requires walls with at least 12 inches of packing between them. The walls are usually built with separate studding and posts, the studs being joined by cross strips every few feet to strengthen the walls. One plan is given at figure 1. The space between the walls is packed with sawdust, and the absence of continuous studding from wall to wall, prevents the conveyance of outside heat to the interior. The inside is closely boarded, and the ice may be packed against the wall without any filling, except pounded or broken ice. The outside appearance of the house may be as shown at figure 2, in which the front is represented with a

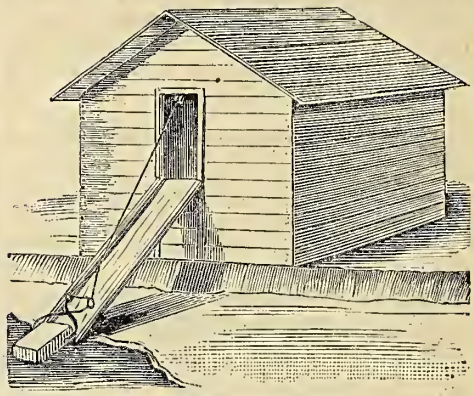


Fig. 3.—REAR OF ICE-HOUSE.

lower and upper door for removing the ice, and a "cat-head" for hoisting out the blocks. The upper door is used until the ice is taken out down to the lower door, when that is used. The rear of the house is shown at figure 3. This is used for filling the house. For this purpose a shoot is made to reach from the pond or stream to the house, as shown in the engraving, and the blocks are drawn up by means of a rope and a pair of grip tongs. The floor is covered with an ample bed of sawdust, and as the ice is filled in, the cracks between the blocks, and the spaces around the walls are compactly filled with broken ice and all made solid. While this is being done, the doors are to be thrown open, so that the ice may be dry and become solidly frozen; to secure this, filling is to be done during cold, dry weather. The cutting of the ice is a simple business when properly managed. For a small supply, for a farm or dairy, all the tools needed are an axe, a cross-cut saw with one thimble and handle removed, or an ice saw (fig. 4), made specially for the purpose, and an ice pole (fig. 5). This pole has two sharp points, one to push and one to draw with. As the iec is to be cut into square even-sized blocks, these should be marked ont 16 inches each way by means of a long line stretched as a guide to the saw. Ice can not be kept well, even in a good ice-house, unless it is cut in regular sized blocks and is closely packed without holes or empty spaces between the pieces. For a large quantity, horse markers and cutters are used. These are shown at work in figure 6. A line is first cut out with the saw, in the front, and the marker attached to the cutter running in this line keeps the latter in its place. The ice is thus cut half through in squares, as shown in the engraving, and these are broken apart in large sections, and pushed, as seen on the left of the picture, to the ice-house. For a family supply, ice may be stored in a corner of the barn; an apartment can be built up as shown at *a*, in the plan given at figure 7, with double walls 8 inches apart and filled in between

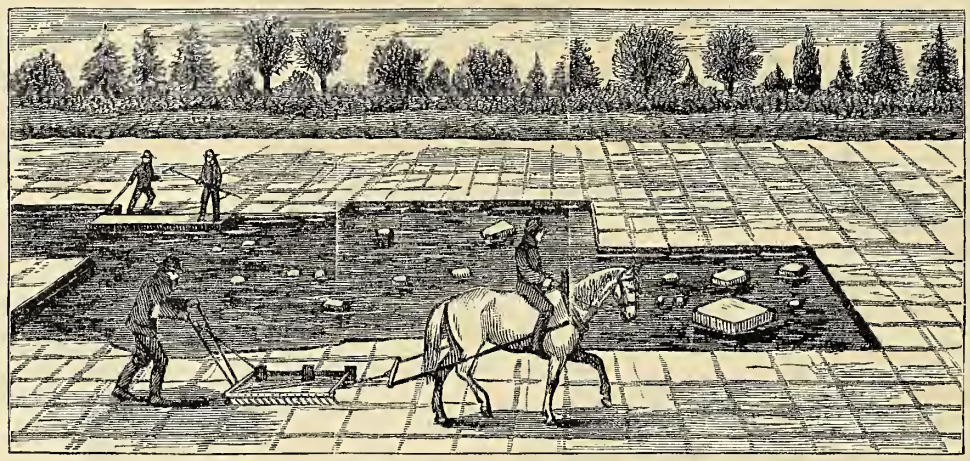


Fig. 6.—HORSE-CUTTER AT WORK.

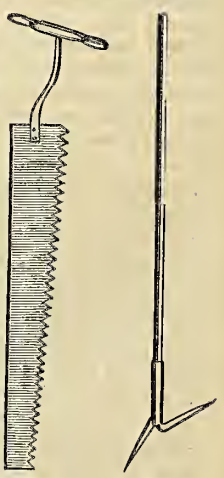


Fig. 4. Fig. 5.

with sawdust or dry tan bark. The ice in this case should be surrounded with 6 or 8 inches of sawdust as, already stated, a small body requires most careful packing to keep it. As the ice is taken out, the sawdust should be packed down at the sides and wherever the ice may have settled away from it. The arrangement of a stable and carriage-house, with a place for ice, (as desired by a correspondent), may be as here shown, *a* being the ice chamber, *b* the stable for a cow, *c* a loose box for a horse, and *d* the carriage-house; or the horse may be provided with an open stall instead of the loose box. Another correspondent wishes a plan for an ice-house and cool-closet in one building. A plan is given at figure 8. To expect the ice in an ice-house to cool a storage-chamber is a mistake. There is a much less waste of ice when it is taken from the house and used in any good refrigerator or ice-box. It will be, therefore, the best to have an ordinary ice-house with a door opening into the cold-room, and to keep this room cool by means of ice brought into it. The form of the cold-rooms, one of which is on each side of the chamber, is shown at figure 9. The box for ice is at the top, where a falling-door is seen, and the ice can be slidden into it on a plank laid to the ice-house. The bottom of the ice-box should be made of zinc, supported by galvanized iron rods under it. The closet should be furnished with shelves, preferably of galvanized iron bars, or of slate.

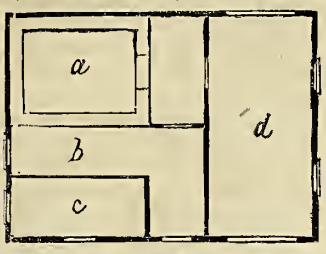
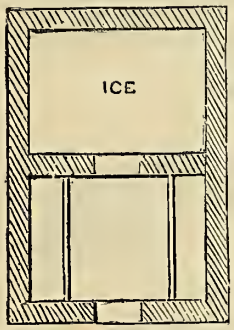


Fig. 7.—ICE-HOUSE AND BARN.



8. ICE-HOUSE AND COOLER.

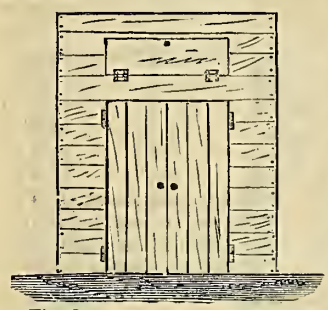
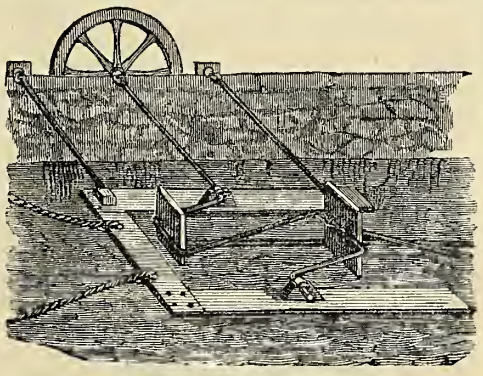


Fig. 9.—FORM OF COOL ROOM.

## A New Water Motor.

The ordinary water-wheel does not utilize more than one-half of the weight of the water. Many efforts have been made to improve upon it, and these have taken the shape of the turbine or horizontal wheel. But it is a very good turbine wheel which will utilize 75 per cent of the force of the water. Moreover, to run a water-wheel of either of these varieties a fall of water is needed. There are several *current* wheels which serve a good purpose for the exceptional circumstances in which they are used; they are operated by the simple ordinary force of the running stream; but a novel motor intended to operate in place of a current wheel, which has been tested in a French river, the Seine, is well worthy the attention of those who make use of current wheels. Wheels are open to the objection that a large portion of the force of the stream is exerted in moving much dead weight, the portion of the wheel which is not out of the water, for instance; and further, that the paddles of the wheel are struck by the water, and leave the water in such a position as necessitates the waste of considerable power. These objections do not exist with a motor of the kind here represented; for only half the weight is out of the water at once, and the force of the water is exerted at right angles to, and directly upon, the paddle. A motor of this kind, with a paddle surface of 40 square feet, has an average immersion of 16 square feet, and thus gives the same power as a wheel of eight times its cost. This machine is an American invention, and has been, and is now, employed in the Seine for raising water. Its construction is readily understood by reference to the illustration. A double crank shaft carries two paddles pivoted by their centers and kept perpendicular by a long, light, wooden floating rod. The shaft is mounted upon a raft, and is connected with a rod which transmits the power through a universal joint to machinery on the bank. A number of motors may be placed near each other in the same stream, as the current soon regains its first velocity again. The amount of power which may thus be gained from a stream, without any falls, so-called, and with a good current, is enormous, and is obviously remarkably cheap. The machine here referred to, with paddles 2½ feet square, and costing only $60 complete, was estimated to give a power of 4 horses and to raise 500,000 gallons of water in 24 hours,


THE NEW WATER MOTOR.

10 feet high, when working in a current of four miles per hour. For irrigating purposes this motor would be found very desirable. It is patented.

## Breeds, Breeding, and Pedigrees.

The old saying that "blood will tell," or as it is sometimes stated, "there is everything in the breed," is the concise statement of a well established and important truth in breeding. When any kind of farm stock, cattle for example, has through a longer or shorter series of generations, acquired certain characteristics, as of shape, milking qualities, etc., and these characteristics have become so firmly fixed, that they are transmitted to the offspring with a great degree of certainty, such a group of animals is known as a distinct *breed*. The time that it may have taken to develop, and fix, the breed-peculiarities, may be very long, or the breed may have sprung up within a few generations, but the result is the same; an assemblage of animals, possessing certain points in common which are different from those in any other group, and able to retain these points, when bred together. By a wise selection of animals, care in getting offsprings, and the application of proper food, and treatment, excellent specimens of stock can be produced. This is breeding, at the basis of which is the fundamental principle of "Like produces like," and out of which rises the common rule of good breeding: "Always select the best." It is impossible to give a full statement of the qualities of a successful breeder. His standard must be high, and well defined, that is, he must know for what points he is breeding; his eye must be keen, and quick to detect any faults, and his judgment good, to be able to see the causes, and his knowledge broad, that it may suggest a remedy. He should not be carried away by beauty of form, or color, and thus sacrifice to these superficial characters,

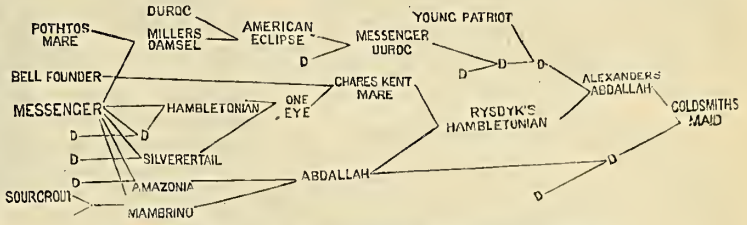


Fig. 1.—DIAGRAM OF PEDIGREE OF GOLDSMITH MAID.

the deep fundamental qualities which give to the animals their great value. Above all, the breeder should not hope to produce an animal that is the *best for everything;* a superior running horse, is not expected to make the best animal for the heavy cart.

After the breed is once established, a record of the ancestry of each animal constituting it, is of great importance, and such a record is a *pedigree.* When these pedigrees are published, the record of the breed is called a *Herd-Book;* as for example, the English Herd-Book of each of the various breeds of cattle. The American Stud-Book for horses, etc. The Am. Devon Herd-Book, now consists of five volumes, the fifth being published last July, and contains the pedigrees of 273 bulls, 552 cows, carrying up the number of bulls in all, to 1,375, and the cows to 2,678. These volumes are continued from time to time, as the number of entries may determine. A sample entry is selected from page 20 of the last volume. "1,218, *General Hawley.*—Calved July 13, 1878, bred by E. H. Hyde, Stafford, Conn.; owned by S. H. Sprague, Westminister, Mass. *Sire,* Barhuron, 727, 2nd sire Queen Ann's Huron, 320. *Dam* Helena F., 1,732, by Felix, 509. 2nd Dam, Cole's Helena 4th, 877, by Iroquois, 564—General Hawley was one of the herd that won the first prize at the Conn. State Fair, held at Hartford, 1878." A pedigree is simply a statement of the ancestry of an animal, and under the law of "like producing like," the better the ancestors, and the closer they resemble each other, the better the offspring, and the stronger its breed marks. The relations of an animal to its ancestors—or, in other words, its family tree, of which it is one of the utmost branches—can be best shown by a diagram. For this purpose we select the one of the famous trotting Mare "Goldsmith Maid," as constructed by Dr. M. Miles, and published in his recent work on Stock Breeding. As one runs back generation after generation, it will be a fine and interesting problem, to work out the amount present, of "Messenger" blood. In the second diagram, the pedigree of Hamond's Merino ram "Gold Drop" is shown, reproduced from the same work. With sufficient time, the pedigree of

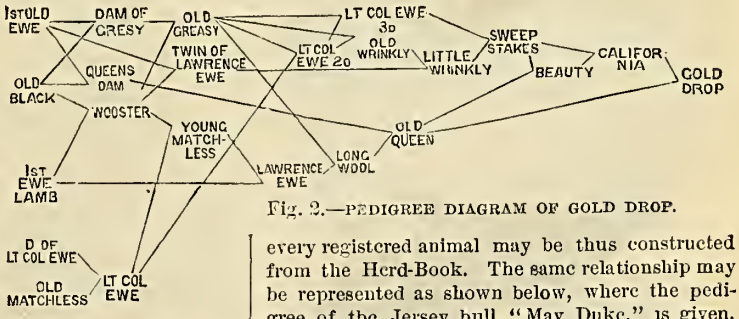


Fig. 2.—PEDIGREE DIAGRAM OF GOLD DROP.

every registered animal may be thus constructed from the Herd-Book. The same relationship may be represented as shown below, where the pedigree of the Jersey bull, "May Duke," is given.

MAY DUKE.

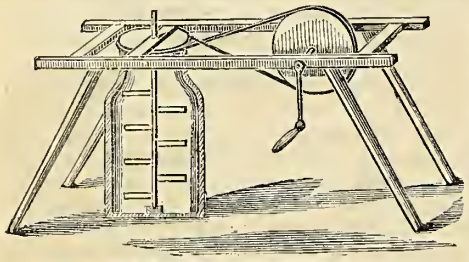
| | |
|---|---|
| MAY. | QUEEN'S FAVORITE. |
| *Madcap.* | Perfection. |
| *Snow-drop.* Young Duke. | Brunette. Favorite. |
| Fawn. Grand Duke | |

Still another style is employed, where only the sires are given, as in the case of Cheviot sheep, which have a record in the following shape, g standing for grand: *Clansman.*—Sire, The Gentle-

man; g. sire, Highland Chief; g. g. sire, Gamester; g. g. g. sire, Blue Ribbon; g. g. g. g. sire, Black Jack, etc. The value of a pedigree, depends principally upon its *truthfulness*, and its *completeness*, in other words, it must be the work of reliable breeders, and must contain no breaks or omissions. The pedigree being perfect, the value of the animal will then depend upon the character of the ancestors; they should be pure in blood, and abound in the desired points. A pedigree should run clearly, step by step, back through a long line of excellent animals.

## A Home-made Churn-Power.

"W. R.," a correspondent in Alabama, sends a drawing of a home-made churn-power, by which the motion may be originated with a wheel. It consists of a frame, as shown in the engraving, in which the churn is set at one end; an upright dasher, attached to a horizontal pulley, is made to work in the churn. The dasher consists of several arms attached to the upright rod; the lower end fits in a piece of wood, which is placed at the bottom of the churn, and is thus held while it is turned around with great rapidity by means of a cord passing around the horizontal pulley of the dasher and the

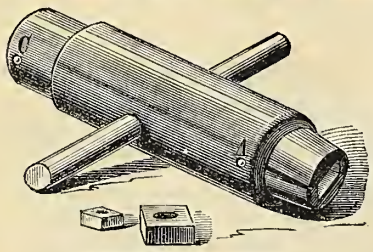


HOME-MADE CHURN-POWER.

upright pulley to which the crank is attached. The pulley over the churn is held in place by a cross cleat, which is fastened by a button or a bolt to the side of the frame, and thus prevents the dasher from being thrown out of place as it is rotated. The legs of the frame stand bracing each other that it may be as stable as possible. The accompanying engraving gives the side view of the churn power, with a section of the churn and the dashers.

## The Automatic Key Wrench.

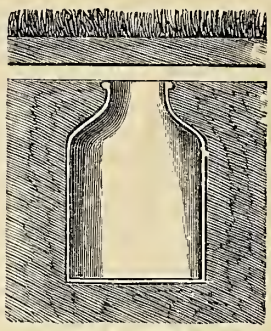
Our advertising columns have so long presented the "key that will wind any watch," that they must be familiar with the appearance of this handy watch key, if they have not made a closer acquaintance from actual use. The same ingenious device that makes the key different from all others, has been applied in a small wrench, which is essentially Mr. Birch's watch key, magnified to a size sufficient to enable its jaws to clasp any nut up to about three-fourths of an inch square. The adjustment is, as in the watch key, made by pressing upon the end opposite to the jaws, and the ease and rapidity with which it can be made to fit any nut within its scope, must commend it to mechanics in general, and make it a most useful addition to the tool-chest of the farmer and the amateur mechanic. The engraving shows the form of the wrench, the real length of which is four inches. It



BIRCH'S KEY WRENCH.

differs from the watch key only in size, and in the addition of a cross-piece to serve as a lever, when considerable power is required to turn the nut.

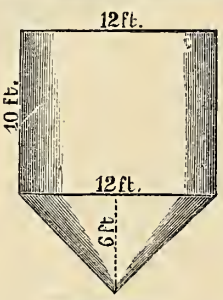
**Still Another Mole-trap.**—A correspondent sends his plan of catching moles and mice, by sinking a narrow-mouthed jar in the runs, so that the animals fall into it; the form of the jar is such that they cannot escape. As mice, doubtless, commit much of the depredation charged to moles, and appropriate their burrows for their own purposes, this trap will serve the purpose of catching them as well as the moles. A flower-pot or straight-sided jar may not retain mice that have been captured, but this form of jar will keep what it gets.



A JAR MOLE-TRAP.

## Cisterns: How To Measure Them.

Inquiries are frequently made, as to a method of measuring the contents of cisterns; and to answer them, in a general way, we give the accompanying engraving of a section of a cistern. This one consists of a cylinder 12 feet in diameter, and 10 feet high, with an inverted cone 6 feet deep, for the bottom. The cubical contents of the upper, or cylindrical portion, is found by multiplying the area of the top, or the square feet the top contains, by the hight of the cylinder.—A general rule for getting the *area of a circle is to square the diameter* (that is, multiply it by itself,) *and multiply the product by the decimal* .7854.* The diameter of this cistern is 12 feet; therefore 12 times 12 equals 144, and this multiplied by .7854 equals 113.0976, or about 113 1/10 feet for the surface measurement, or the number of feet of boards it would take to just cover the cistern. This 113 1/10 feet multiplied by 10 feet in depth gives 1,131 cubic feet as the contents of the cylinder portion.—To find the contents of a cone: *Multiply the area of its base by one-third of its hight.* The bottom of this cistern is an inverted cone. Its base area is the same as the cylinder above, viz., 113 1/10 feet. Multiplying this by 2 (one-third of the hight of the cone) gives 226 2/10 for the contents of the cone, or bottom part. This, added to the cylinder contents above (1,131 feet), or 1,131 + 226 2/10, gives 1,357 2/10 cubic feet as the solid contents of the whole cistern. If there were another cone at the top of the cistern, its contents should be calculated in the same manner, and added to the parts already determined.—The ordinary gallon contains 231 inches: one cubic foot (1,728 solid inches), therefore, contains 7.48, or very nearly 7½ gallons. A barrel of 31½ gallons contains about 4.27, or a trifle over 4¼ cubic feet. The above cistern, containing 1,357 cubic feet, would therefore hold about 318 barrels of water, if entirely full. Each foot in depth of the perpendicular portion of the cistern in question would hold 26½ barrels (113.1÷4.27).



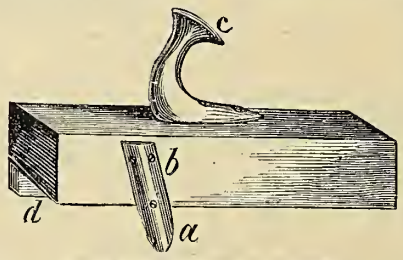

THE CISTERN.

* RULES FOR MEASUREMNT.—*To find the Circumference of a Circle or Ring:* For ordinary calculation, we call the circumference or distance around, three times the diameter or greatest distance across. It is really three and one-seventh, or to be still more accurate, multiply the diameter by 3.1416—cutting off four figures from the right of the product as decimals. A ring or circle 7 foot across would be 7×3 1/7, or 22 feet in circumference; or, to be extremely accurate, 7×3.1416 gives 21 and 99-100ths feet.

*To find the Area of the Surface of a Circle:* Multiply the square of the diameter by .7854, cutting off four right hand figures. Thus, for a circle or ring 7 feet across we have 7 times 7 equals 49. This multiplied by .7854, or 49 ×.7854, gives 38.4846, or just about 38½ feet.—Another rule is to multiply half the diameter by half the circumference. For a 7-feet circle, 7 times 3.1416 equals 21.9912. Half of this is 10.9956. Multiply this by 3½, or half of the diameter, 7 feet, (that is 10.9956 by 3½) equals 38.4846, or 38½ feet, the same as by the rule above.

## A Useful Slitting Gauge.

Those who work at carpentry, frequently use an ordinary carpenter's gauge, intended for marking, for slitting up straight grained, thin stuff. A correspondent "W. W.," Cheap Hill, Tenn., finds a tool made for the purpose greatly preferable, and sends a sketch showing how he makes it. He uses an old plane stock, to which the knife *a*, is fastened upon the side *b*. The handle of the plane, *c*, is left in its original place. A gauge strip, the end of which is shown at *d*, is attached to the bottom of the plane; this strip is attached by three small screws, and may be moved to and from the knife, as it is desired to cut a narrower or wider strip. The knife, *a*, is made from an old saw plate, and ground down at the edges, and should project below the plane-stock, for a greater or less distance, according to the work to be done. To slit stuff from one-half, to an inch thick, the knife should project half an inch below the plane. Mr. W. finds this tool very useful, in the absence of a mill where such work is done, to slit up lumber for lattice

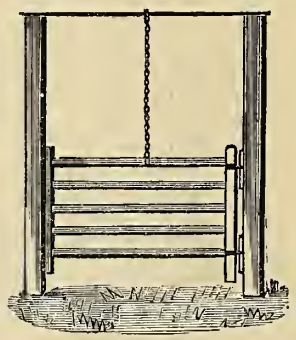



HOME-MADE SLITTING GAUGE.

work, and such uses. If the strip does not come off at once, a tap with a mallet will cause it to do so.

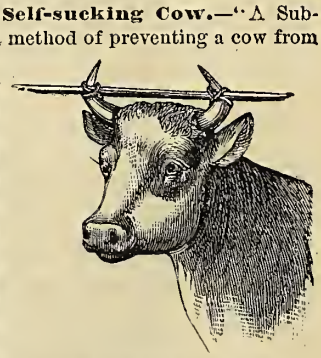
## A Garden Gate.

A correspondent, "A. E. M.," at Rock Cliff, Colorado, sends us a very neat sketch of a garden gate he saw in Canada. He thinks that such a gate would be useful to many who live where snows are deep, and where there are people who cannot shut a gate after them. The peculiarity of the gate is in being suspended by a chain, from the frame above, and in the pintle of the hinge, which is made in the form of a staple, and a foot or more long. It will be seen that if pushed either way, the gate will rise and swing in the arc of a circle, and be lifted above the snow, when let go, it will at once drop back to its place.



A HANDY GARDEN GATE.

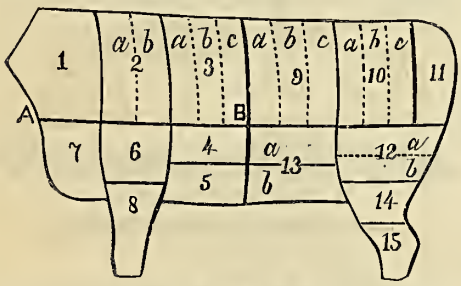
**Cure for a Self-sucking Cow.**—"A Subscriber" sends a method of preventing a cow from sucking herself; this is simply to fasten to the horns a long sharp-pointed stick by means of strong pieces of twine, as shown in the engraving here given. The pointed stick should extend about a foot outside of the horns. This simple contrivance prevents the cow from reaching the teat when disposed to suck herself. The stick should be removed so soon as it is evident that the cow has lost the inclination to suck herself, which will be after a short time.



STICK FOR SUCKING COW.

## To Cut Up a Side of Beef.

When a beef carcass is properly slaughtered and dressed (see p. 461, last month), it must hang 12 to 24 hours that it may cool and set. If the beef is cut up before this, the cuts can not be made shapely, and the meat will not keep so well as when the animal heat is all out of it. When the meat is cool, the side may be divided into two quarters by cutting through it at the dark line which goes through the carcass between the figures 3 and 9, shown in the engraving. It is then easily handled. Each quarter may then be cut up for use or for packing, in the following manner. The fore-quarter is divided by the knife and saw from *A* to *B*. The upper part is cut into 3 parts; the neck, marked 1; the chuck rib 2, having 4 ribs, which may be cut into two pieces, *a*, *b*; the standing ribs (3), which are cut into 3 pieces as marked. The lower piece is divided as follows: the plate (4); the navel (5); the shoulder (6); the brisket (7); and the leg (8). The hind-quarter is divided as follows: the short ribs, or sirloin (9), which is cut into three pieces for packing, or for roasting, or if used for steak into "porter-house steaks;" the sirloin steak (10) is divided for packing into 3 cuts, and for use fresh into




CUTTING UP A BEEF.

steaks. The rump or "aitch bone" (11) may be either cut into steaks or packed, and is excellent either way. The round (12) is used for steak or for salting, for the latter purpose it is cut into two pieces; the flank (13) is divided into the upper or thick flank, *a*, and the lower and thin flank, *b*; these pieces are either packed or boiled fresh; the hock (14) and shank (15) are used for boiling and for soup. The head and tail are skinned, and should by no means be thrown away. The head is split into two cheeks, which make excellent soup, or boiled with the feet and cut into small squares may be put away in molds to jelly and for eating cold; the tail makes a savory highly gelatinous soup, Ox-tail Soup, being in great demand at the restaurants in cold weather. The tools required in cutting are, a long-bladed sharp knife and a meat-saw, a fine-toothed, cross-cut hand-saw will cut bone very well; bone should always be sawed, and not cut with an axe. Much of the economy in using the meat depends upon how it is cut up; a joint which would make a roast, or steaks, if properly cut, may, by bad cutting, be made fit only for salting down, or boiling whole.

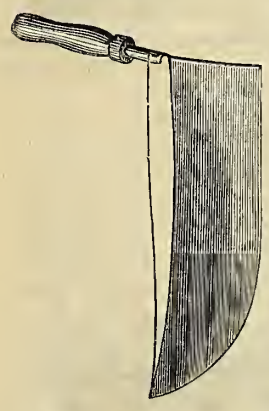


Fig. 1.—HAY KNIFE.

## Hay-Knives—Their Uses and Patterns.

In feeding either hay or straw from a stack, it is very desirable to not remove the whole top of the stack at first. If this is done, the rains wet the fodder down to a considerable distance and spoil it, or, at least, destroy its freshness. And when snow falls, if the whole large surface is exposed, the animals are frequently obliged to eat cold, icy, frozen fodder, which must be injurious; besides it is harder to get the hay from the stack to the racks when in this condition. A hay-knife is no new farm implement, and so long as hay and straw are put in stacks, and fed from, there are many reasons for their use; in fact, a much more extended use than at present. Even in the barns hay-knives are often of importance. It may be that one-half of the mow could be fed out first and then filled with straw or hay from a stack, thus providing for a mixture of the two kinds of fodder; or a place for storing things might be provided by first feeding out a small end of the mow. The advantages in using a hay-knife are so many, that it would seem to be a necessary implement on every farm, and we give illustrations of the prineipal forms now in use. A common wood-cutting axe, kept sharp, will answer in the absence of the more desirable hay-knife. We well remember using the axe for dividing not only large mows of hay, but also for hay and straw stacks. This was 40 to 50 years ago, when hay-knives were unknown; but an axe will answer fairly now, where a regular hay-knife is not procurable, or when there is but small use for one. Figure 1 shows the old American knife, with which many a farmer's boy is familiar. Our personal recollection is of one made by the neighboring blacksmith; its handle was not set out far enough from the blade, and it brought the hands against the roughly-cut surface of the standing part of the stack. The handle should be in a plane parallel with the blade, and at least four inches away. The

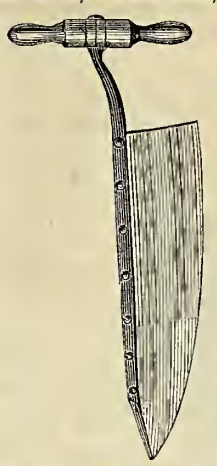


Fig. 2. AUGER HANDLED.

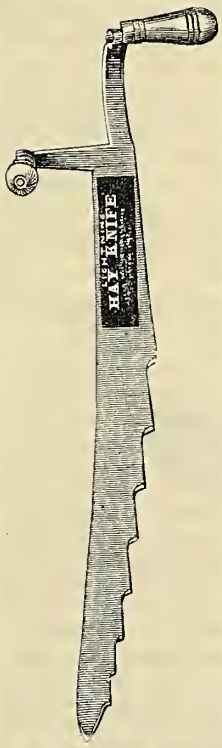



Fig. 3.—"LIGHTNING."

form, shown in figure 1, is the old and common one, and with minor modifications is to be found in many different countries. The knife shown in figure 2 is now more commonly met with in the implement stores. The blade is about 2 feet in length, and fastened by rivets to the back strap, which is continued above and bent out in a curve to throw the handle, shaped like an ordinary auger handle, away from the plane of the cutting surface. The whole knife is about 30 inches long. The "Lightning Hay-Knife," figure 3, is the latest. It consists of a narrow plate of steel, along one side of which are eight notches or teeth, the lower edge of each tooth being made sharp and cutting. There are two strong handles, and so situated that the power is expended with the best effect. This is a great improvement on the old, and rather clumsy, knives, so long used, and which served an excellent purpose in their day. For cutting out peat, the "Lightning" knife must prove very useful. There are other styles of hay-knives, among which is the shear or **V** shaped knife.

**Arbitrary Values of Food.**—In choosing feed for animals, it is not safe to be guided altogether by the chemical constituents. An analysis may be useful in comparing one well known food with another, and may help us in making up a judgment as to proportions and values. But with feeding stuffs not well known, a mere analysis may be delusive; for instance, spent hops are shown to contain 11.7 per cent of fat, 9.9 per cent of ash, and 14.7 per cent of albuminoides. From this they would appear to surpass in value the best clover-hay, or even to equal cotton-seed meal, in nutritive qualities; but as a food for cows few would care to experiment with them. This is a broad example, but it shows the necessity for discretion in forming opinions of the value of such crude foods as sedges, rushes, and coarse, wild grasses. Digestibility is of the utmost importanee, and must be taken into account in estimating the values of food.

## Fine-Grained Whetstones—How Made.

A few years ago, there was not a fine-grained American whetstone in existence; the stones used for sharpening penknives, carpenter's tools, razors,

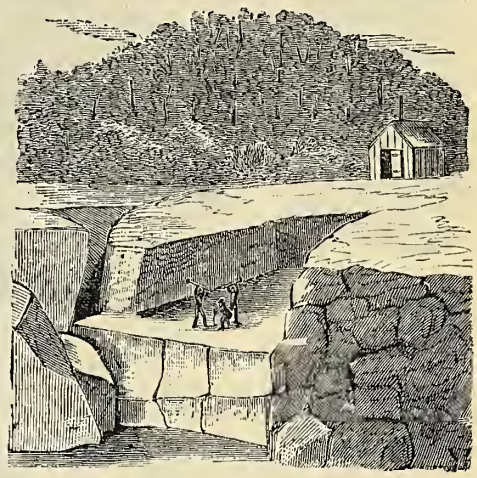


Fig. 1.—WHETSTONE QUARRY.

and other fine edged cutting tools, were all brought from Turkey or Greece, and were known as Turkey hones. About 25 years ago it was discovered that there was a plenty of the same kind of rock in America, and the manufacture of whetstones was begun in several places. The stone is known by mineralogists, as Novaculite, and is a hard, fine grained slate, which contains exceedingly minute particles of quartz, but these are so fine, that it is impossible to see them with the unaided eye. It is the sharp edges of these fine particles of quartz, which cut or file the steel of a blade, and grind it down to a sharp edge. Novaculite is found in North

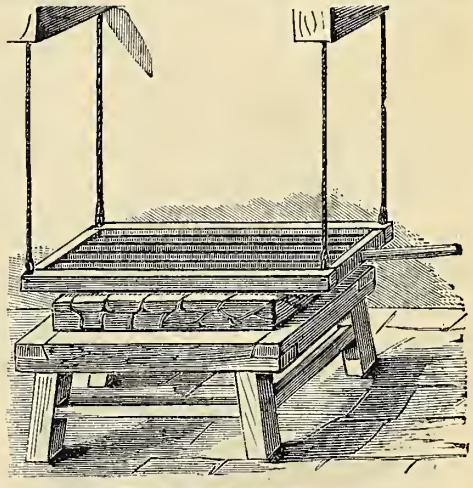


Fig. 2.—SAW AND FRAME.

Carolina; in Northern Michigan, near the shores of Lake Superior; also in Arkansas, in Ouachita and Hot Springs Counties. The best stone in the country comes from Hot Springs County, that from Ouachita Co. (pronounced Washita) is coarser than the former, and is not fit for the best work. Novaculite is found in veins, in quartz, or quartzite rock, and at figure 1 is shown a representation of a vein of whetstone, opened by a quarry. The stone is broken out in pieces by blasting with powder, and the blocks are taken to a mill, and sawn into slabs by means of soft iron saws. Soft iron is used be-

cause it catches hold of the fine sand, which is fed along with water upon the saws, and causes the sharp edges of the small particles, of which the sand consists, to scratch or cut the hard whetstone.

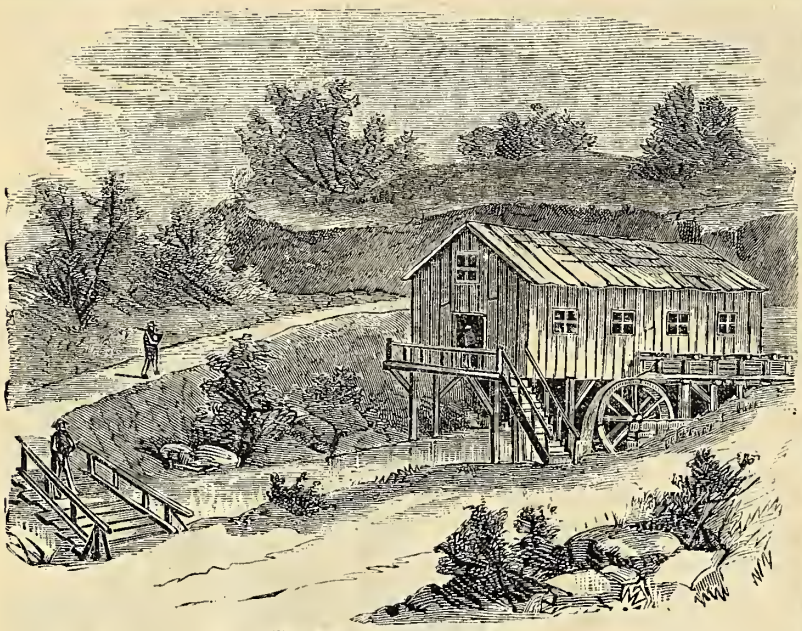


Fig. 3.—A WHETSTONE MILL.

It is very difficult to find blocks of the stone larger than 6 inches that are free from seams of quartz, which spoil them for use; the large stones are therefore much dearer than small ones, and cost as high as $3 or more a pound; the smaller ones costing from $1 a pound, up to $2.50 for the very small ones, which are laborious to make. The saws consist of a frame of timber, in which are stretched strips of iron, ⅛ of an inch thick, and 3 or 4 inches wide, at such distances apart, as will cut up the stones into the sizes desired. The frame, (fig 2) is hung up by each of the four corners, so that it can be raised or lowered, and is moved back and forth 80 times a minute, making strokes 16 or 18 inches in length, by a pitman attached to a crank, which is set in motion by a water wheel, or a steam engine. Many of the small mills which work up the stone, are placed in picturesque valleys, on the banks of rapid rocky streams, near the quarries. At figure 3 is a picture of one of these mills, of which the writer made a sketch some years ago, when visiting a whetstone quarry. The stone is cut into a great variety of shapes, and the uses to which these stones are put, are scarcely known by persons outside of the different industries in which they are required. At figure 4 is shown the very well known penknife piece, and at figure 5 the carpenter's oil-stone. At figure 6 is the wheel used in dentist's and jeweler's lathes, and also for sewing machine needles; at figure 7 is the round-edged slip, figure 8 is the file slip, figure 9 the knife blade, figure 10 the bevel edge flat file, figure 11 the diamond shape file slip, figure 12 is the dentist's point, and figure 13 the triangular slip. There are a great number of other peculiar shapes made for special purposes, and they are all in requisition in armories, sewing machine factories, and machine shops of every kind. Watch makers, jewelers, and dentists use the most curious and rarest shapes in making the delicate machines needed for their operations, and which they usually make for themselves.

Fig. 4.—PENKNIFE PIECE.

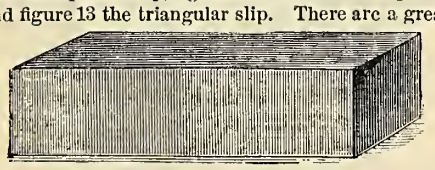


Fig. 5.—CARPENTER'S OIL-STONE.

In cutting the blocks, which are very irregular in size, these are cemented together with Plaster of Paris into a solid mass, and placed upon a table under the saw. The top of this mass is covered with sand and smoothed off. The sand used is a peculiar kind, found only on the beach at Northport, Long Island, and valued on account of its peculiar sharpness and hardness. When the saw is started, water is made to trickle down on to the bed of stone, so as to wash the sand down under the saw. The stone is first cut into slabs 2 inches thick. These are then arranged on the bed, and cemented as before, and cut into 8-inch lengths, which are afterward sawn into pieces 1¼ inch thick, which makes the staple size, all others are cut from the misshapen bits, which come from the sides of the blocks. After having been cut, the stones are smoothed on a rubbing wheel, (fig. 14). This is a large, wooden, horizontal wheel, covered with plates of cast iron. The iron plates are sprinkled with water and sand, and, as it rotates about once in a second, the stones are ground upon it to a fine smooth face or edge; the fine stones, such as the dentist's point, the jeweler's knife edge and others, require great skill in the grinding. After rubbing, the stones are washed, and dried in a hot room, and are then ready for sale or use. In selecting a stone, a hard one is best for fine tools of hard steel; carpenter's tools require a softer stone of a fine grain; a soft stone cuts faster than a hard one. Hard spots, which are an injury to a stone, may be discovered by discolored patches of veins; a milk white, even colored, and clear stone, is to be preferred.

Fig. 6.—THE WHEEL.

## Improvement in the Sheep Interest.

One of the first important industries of the country to feel the influence of the general improvement is sheep breeding. A very marked change has occurred since last spring. There has not been a time since the unnatural excitement of twenty years ago, in which there has been a more active demand for rams for the improvement of flocks. Breeders in Vermont and New York, who make a special business of supplying this demand, have nearly exhausted their stock, and hundreds of fine animals have been sent to all parts of the West to sheep-raisers there. Other breeds of sheep are in similar demand, and the Eastern shepherds are buying up South-down, Hampshire-down, and Cotswold rams, for the production of lambs for market. There is no other industry that more deserves to flourish than this. Under favoring circumstances a well cared for flock offers a greater income from the amount invested, and a richer reward for labor, than any other interest in live stock. At the outset of this improvement it is encouraging to notice that the tendency is towards a higher breeding, and a more productive sort than the common native sheep.

Fig. 7.—ROUND EDGED SLIP.

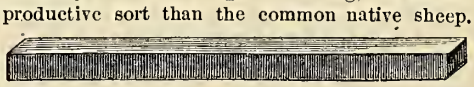


Fig. 8.—THE FILE SLIP.

Every sheep owner should consider well, what an important matter it is to him to increase his income from 50, a 100, or a 1,000 sheep, by improving the standard of his flock, rather than to enlarge it merely by addition of numbers. A doubled weight of fleece costs no more than the original weight, except that perhaps a little extra feed may be required to restore the draft upon the vitality of an animal which yields 16 to 24 lbs. of wool and yolk; but the housing, attention in feeding, shearing, and other incidental expenses, cost no more for a high grade Merino than for a half-bred Mexican-Merino. The larger western sheep owners are acting upon this principle, and are adding the best rams to their flocks by the car-load at a time. Eastern flock owners, who keep the larger breeds, should take a hint from the enterprise of the western men. While the demand for the clothing wool, coming from the western plains, will undoubtedly increase steadily, it is equally true that combing and worsted wools will keep pace on the market with those, for the latter are a staple raw material which enters very extensively into those manufactures which are ready to come into active demand on the very first impulse from renewed business. The business in this class of goods has suffered perhaps more than almost any other from the forced economies of consumers, but it must be evident that a forced economy—necessitating as it must a complete using up of clothes and goods in stock—will be followed by a demand all the more active, from the worn-out condition of clothing and the low stocks in dealers hands. A large increase in the production of wool can not be made so easily or so quickly as an increase in the cotton, corn, or tobacco crop, but when the business does revive, the revival is usually more or less permanent. Besides, there is an outlet for mutton abroad, and a large consumption to be encouraged at home, and by and by farmers themselves will learn to look upon "a lamb from the flock" as a choice morsel, equally with the pastoral patriarchs of the ancient time. So that for the large breeds common in the eastern portion of the country, there is as hopeful a future as for the fine wool breeds; and it is very certain that these breeds pay even better for improvement by pure blood than the fine wools, for there are the two dividends—the lamb and the fleece—and the capital stock—the carcass—is returned, in many cases, with an agreeable bonus besides to the breeder.

Fig. 9.—THE KNIFE BLADE.

Fig. 10.—BEVELED FLAT FILE.

Fig. 11.—THE DIAMOND SLIP.

Fig. 12.—DENTIST'S POINT.

Fig. 13.—THE TRIANGULAR SLIPS.

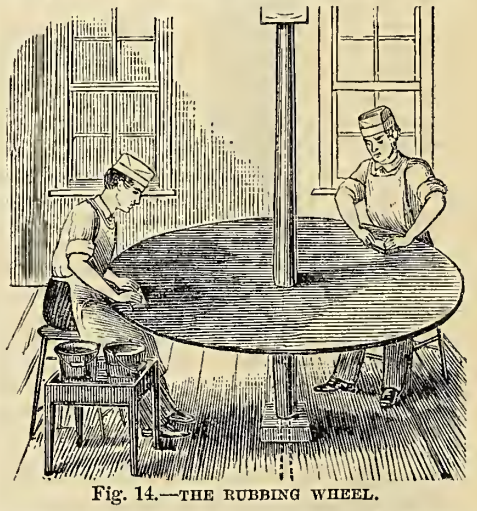
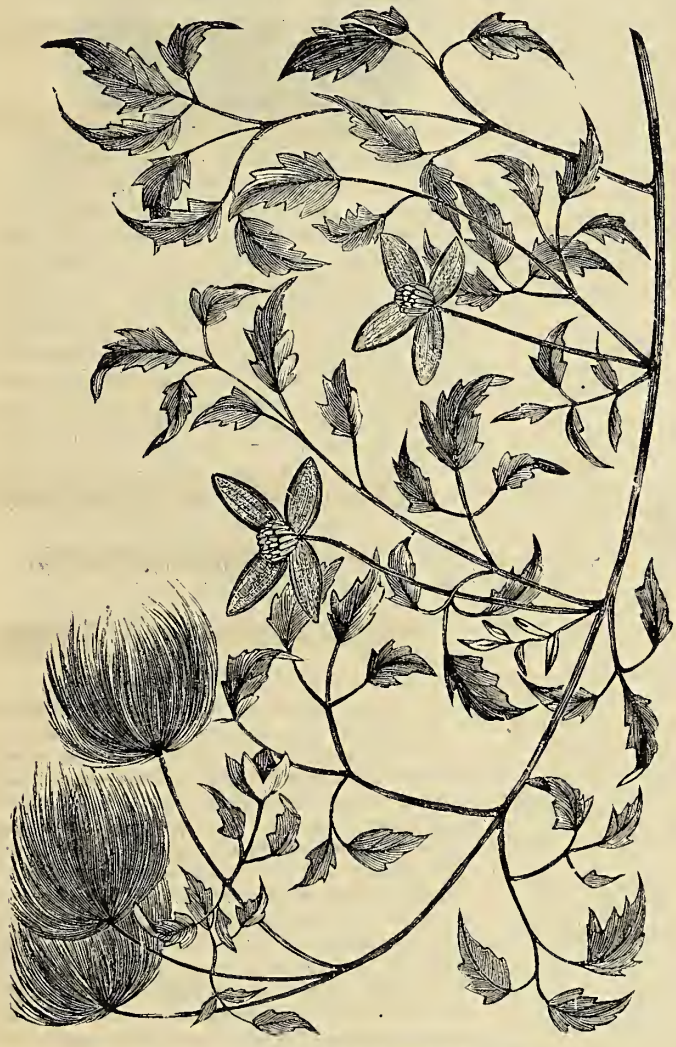


Fig. 14.—THE RUBBING WHEEL.

## The Yellow Clematis.

Those who only know the Clematis from the magnificent Japanese and Chinese hybrids, which, with their enormous flowers 4 to 6 inches or more across, may be regarded as among the triumphs of modern Horticulture, can hardly be aware of the great variety the genus presents. Not all the Clematises are climbers, as there are some herbaceous species valued as border plants. Among the climbers, besides the grand hybrids already mentioned, are others so strikingly unlike these, that one would not at first sight take them to belong to the same genus. Some of these we have figured from time to time, notably the Scarlet Clematis (*C. coccinea*); this represents a group, the flowers of which do not spread open, but the sepals form a sort of urn-shaped flower. Then there is a group with quite small flowers in large clusters, and producing a profusion of bloom; of this group there is none better than our native Virgin's Bower or Traveller's Joy (*Clematis Virginium*), which possesses so many good qualities as a climber that we wonder why we see it so seldom in cultivation. Resembling this in appearance is *C. Flammula*, of Europe, the Sweet-scented Virgin's Bower, a name it well deserves; it is not quite so vigorous a climber as ours, but its delightful fragrance commends it for general use. In still another group, we find flowers of medium size, and solitary, upon long stems, in the axils of the leaves. To this group belongs *Clematis graveolens*, the flowers of which, something remarkable among these plants, are yellow. The plant is rather slender and delicate, having less robust stems than the other climbers; we do not know how high it will reach, our own vine being where it can not go above 8 or 10 feet. The foliage, of a fresh and pleasing green, is more finely cut than in the other species, each leaf consisting of three to five sharp-pointed leaflets which are themselves cut or lobed. The flowers are solitary, of only four spreading sepals, and are about an inch and a half across; their color is a pale lemon-yellow. This plant, coming from the higher mountains of Chinese Tartary, is a comparatively recent introduction. As may be inferred from its origin, it has proved perfectly hardy in the severe climate of New England, and this, together with its delicate habit, its very free growth, and the unusual color of its abundant flowers, will make it very popular when it becomes better known. It blooms in late summer, and its flowers are soon succeeded by globular clusters of fruits, the long feathery tails to which are of a very pale green, and about as showy as the flowers. The specific name, *graveolens*, means "heavy-scented," the applicability of which is not readily seen (or rather smelt), as we have not been able to discover a perceptible odor, heavy or otherwise. "Heavy-scented Clematis," sometimes given as a common name, is not a very pleasing one, besides it is quite too long, while "Yellow Clematis" is preferable in several respects, and it is moreover descriptive.



THE YELLOW CLEMATIS (*Clematis graveolens*).

LARGE-FLOWERED SKULLCAP (*Scutellaria macrantha*).

## The Skullcaps—Wild and Garden.

It sometimes happens that plants receive their large botanical names from very small peculiarities. The Skullcaps belong to the great Mint Family, in which the corolla is more or less two-lipped, and the calyx is frequently so. In the Skullcaps the calyx is not only two-lipped, but the upper lip has a curious appendage which, when the flower has fallen, shuts down over the lower lip, thus converting the calyx into a little box, within which the fruit or seeds mature. This appendage, or cover, being shaped somewhat like a little dish, the Latin name for which is *scutella*, and Linnæus made from this *Scutellaria*, the botannical name for the Skullcaps. The shape of the calyx gives the common name; it looks more like the head-piece of some suits of armor than it does like any article of modern headwear, the name *Skullcap* was probably given in those days when men wore iron-pots on their heads when they did battle. This genus, comprising nearly a hundred species, has representatives in all parts of the world, our own country having over 20. They are all perennial herbs, mostly with blue flowers, and are without any of the aromatic qualities so generally found in the Mint Family, but have bitter foliage. Our most common species, and also the smallest flowered and least showy, *Scutellaria lateriflora*, the Side-flowered Skullcap, is one of the very long list of plants claimed to cure that neurable disease—hydrophobia, and is known in many places as Mad-dog Skullcap, though all belief in its virtues has died out. Several exotic species are in cultivation in gardens. The most showy of these is the Large-flowered Skullcap, (*Scutellaria macrantha*), from Siberia. Having been so much pleased with this in the garden the past summer, we here give an engraving of it. It forms tufts about nine inches high; the shape of the leaves and flowers is shown in the engraving, which gives them of the natural size. The abundant flowers are of a beautiful blue, a color of which we are not likely to have too much; they appear in mid-summer.

## The Common White Mildews.

In mid-summer and later, the leaves of several of our common plants are covered with a white substance, which makes them look as if they had been dusted with flour. Such is the case with the Dandelion, as many have noticed, and may have thought it due to the dust from the street. The Dogwoods and Elders, Oaks and Maples, but more especially the Willows and Lilacs, are attacked by various, but closely related, species of White Mildews. The European grape mildew is caused by a member of

this same group—a disease which has ruined thousands of acres of vineyards in Southern France and adjoining countries, and has its counterpart with

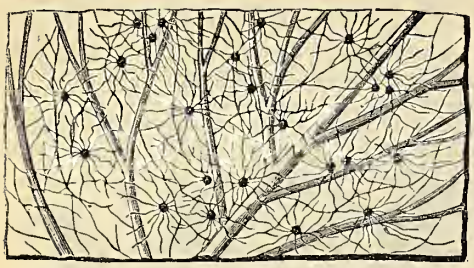


Fig. 1.—PORTION OF LEAF WITH MILDEW.

us in another species, which abounds upon our native vines in some seasons and localities. The whole group of species has many things in common, and in describing one, an idea of the whole will be given. The Lilac Mildew being the most easily and generally observed, as it prevails wherever a Lilac is found, and its range is, therefore, not very limited, is chosen as a representative of the group. If the leaves are examined in autumn, they will be found to be covered with a white—a dirty white—substance, which a hand-lens shows to consist of a vast multitude of fine cobwebby threads running over and closely clinging to the surface of the leaf. In figure 1, a small portion of a leaf is represented as seen with a strong magnifying glass. The heavy lines or bars represent the veins, or ribs, of the leaf, and upon them, and the parts of the leaf between, the fine threads are seen, with here and there small, dark bodies, which will concern us further on. If a cross-section of the leaf is made with a sharp knife, and a side view obtained under the compound microscope, something like figure 2 is seen. The lower portion of the illustration, showing the upper part of the leaf in section, with its closely packed and irregular cells, upon which a thread of the mildew is running with two short branches, *a*, extending away from the leaf and into the air. On the lower side of the thread are small, "knotty" outgrowths, *b*, *b*, which penetrate the surface of the leaf, and serve to hold the mildew to, and also to absorb the nourishment from, the leaf. The short, upward branches are observed to

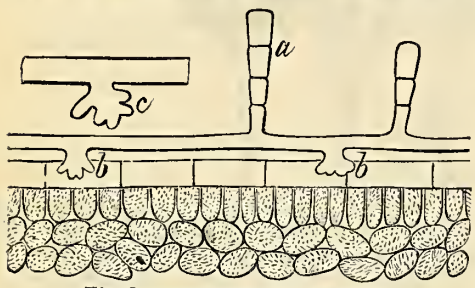



Fig. 2.—CROSS-SECTION OF LEAF.

be divided up into small, nearly oval, parts. These are the spores, which form in great abundance in the early part of the season, and serve as a rapid means of propagating the mildew; they are the summer spores, which germinate at once—that is, in only a few hours after they have fallen from the stem. The dark specks in figure 1 are somewhat complicated bodies, and are for the purpose of carrying the mildew through the winter, and are, therefore, concerned in the formation and protection of the winter spores. Two of these oval bodies are shown in figure 3, one of them whole, and the other broken open and the contents partly in view. These bodies are seen to be provided with a number of arms—most of which, for convenience, are omitted in the engraving—and the tips branched and divided in a peculiar and attractive manner. These arms serve to hold the body to the leaf or other substance, much as the hooks and other arrangements of various seeds enable them to cling to clothing, wool of sheep, hair of cattle, etc. Aside from the arms, the body, which we may call a spore-case, consists of a thick wall of cells, inside of which there are a number of large oval, transparent bodies, containing smaller ones within them. These last are the spores. In figure 4, the spore-sacs are shown entirely removed from the hard, brown spore-case, and their manner of union to each other is also seen. A spore, very highly magnified, is given on the right hand. These spores remain in the thick coverings through the winter, and germinate in the spring.

We have thus traced the history of the White Mould upon the Lilac, and it is essentially the same in the species of this group which thrive upon other kinds of plants. As they are superficial—that is, do not send their threads down through the tissue of the leaves, as in the case of the Potato Rot, rusts, etc., they are generally of a less serious nature, though at times, as in the vineyards of Europe already mentioned, they are able to do much damage. The remedy is Flowers of Sulphur, applied in early summer, while the stalk-spores are forming, and at intervals through the rest of the season. The winter-spores can be destroyed by burning the leaves after they fall in autumn.

## Caring for Young Trees.

Young trees, whether fruit or ornamental, are subject in winter to injury by winds and by ani-

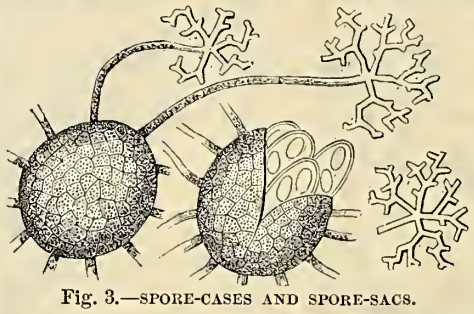


Fig. 3.—SPORE-CASES AND SPORE-SACS.

mals. To prevent them from being torn up or thrashed about by storms, they are sometimes staked, and this is often so badly done that the trees are in worse condition the next spring than they would have been without the stakes. A fruit, or other deciduous tree, with good roots, and well planted, rarely needs any stakes; but with evergreens, the case is different. In planting, the tops of these cannot be cut back, as can the others, without ruining them, and as they present an almost solid surface to the winds, they must have help to allow them to remain erect. For evergreens, nothing is so useful as stones placed upon the surface at their base. The stones may be large or small, but enough should be used to fairly anchor the tree. This avoids all chafing and injury by stakes or guys, holds the tree firmly, and as it sways by the wind, the center of motion is in the natural place, at the surface of the earth. Stones should be put in place at the time of planting, as then they serve to both keep the trees in place, and as a mulch. Deciduous trees may also be treated in this manner. The winter injury by animals is mainly from mice and rabbits, not forgetting that most destructive animal—

MAN.—There are some men who have no respect for a tree, and one is at times forced to think that this feeling of indifference is an in-born hatred of trees—a sort of congenital *arbor-phobia*. These persons will hitch a horse to a young tree even if hitching posts are provided. If they drive into a place when the snow is on the ground, they disregard paths, but take a short cut for the house, taking care, however, to choose their straight path

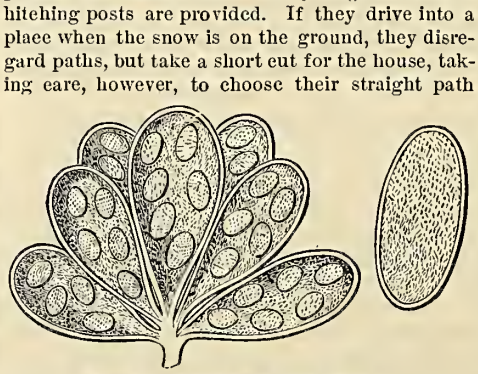
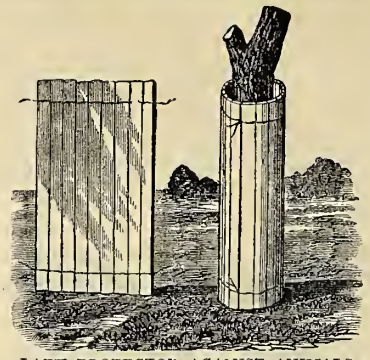


Fig. 4.—SPORE-SACS AND SPORE.

where the greatest number of young trees are to be run over. Tree-boxes, and fence-wires to keep such in the road, will help, but after these are provided, the patience of several Jobs will be needed for the unforeseen damage these men will contrive to do.



LATH PROTECTOR AGAINST ANIMALS.

MICE.—It is vastly easier to prevent their attacks than to write us next spring asking how to repair the damage. All rubbish in which they may harbor, should be cleared away from the trees, the animals liking to work under cover. The general remedy is, to make a mound of solid earth—no dead weeds or rubbish with it—a foot or more high at the base of the tree. The earth should be firmly compacted, and the cone made steep and smooth. Cases have come to our knowledge where this was the cause of an injury greater than that it was designed to prevent. While the mound was still soft, the swaying of the tree by the wind pushed the earth away from it, leaving a space between that and the trunk. While in this condition the earth froze hard, and, in the subsequent swaying of the tree, the trunk was brought in contact with, and ground against, the frozen mound, bruising and rubbing the bark most disastrously. This should be guarded against, and the earth tramped again if need be. After the mound is frozen solid, the danger from this source is over. Still better, but more troublesome, is some shield around the base of the tree, a strip of heavy sheathing-paper, or better, a band of sheet-iron, or tin from old fruit cans. The lower edge being thrust into the earth, a single turn of wire near the top will hold it. Tramping of light snows is necessary to prevent mice from working under them, and when they are deep and solid enough to allow mice to work above a protecting band, the snow must be pressed down or removed.

RABBITS are as much more destructive as they are larger than mice, but they are more easily kept off. So great is the antipathy of these creatures to dead animal matters, that they are readily repelled. Rubbing the trunk with liver or other cheap meat, or with the flesh of a dead rabbit, is effective. In large orchards at the West, blood from slaughtering is used, sprinkled by the use of a swab made by tying a few corn husks to a handle. Mechanical protectors may be used as against mice, but they, of course, must be much higher. A most effective protector is made with common laths and annealed wire; the engraving makes a long description unnecessary. Corn stalks put together in the same manner as the lath, or laid against the tree, and bound together, have been found equally efficacious.

## Notes from the Pines.

The English horticultural journals have, for well nigh a year, given very doleful comments on the weather, which has evidently been most unfavorable to cultivators, whether of the garden or field. As with the islanders, our weather in these autumn months has been of a most remarkable kind—but, in contrast with theirs, in the direction of very unusual warmth, and of a dryness almost amounting to drouth. With every temptation to discuss the weather, I refrain, knowing from experience in reading the English journals, how irksome this iteration becomes to those not especially interested in the weather at a given place and time. But there are some practical lessons to be drawn from our present unusual autumnal weather—and that it is really unusual, the records testify.

**That Most Disastrous Winter**

of 1873-4—which swept away evergreens that had been planted 10 or 15 years, as well as native Red-

Cedars—the natural growth of a century more or less, will long be remembered by tree-growers. That winter was preceded by an autumn much like the present, at least in the absence of rain. Winter set in with the soil as dry as at the end of an August drouth; the winter, though a severe one, was not colder than many another winter that was not especially disastrous, but at the end of this particular winter, what havoc! Lawns and plantations filled with the killed and wounded showed the severity of the battle; not only recent recruits, but veterans that had survived many a campaign, were either dead or placed beyond all future useful service, and many a tree-lover committed his favorites to the smoking funeral pyre with a heavy heart, an involuntary disciple of cremation.

**What Caused this Destruction?**

The severity of the winter, great as it was, would not account for it, for the same trees, when much younger and less able to do so, had survived winters quite as severe. The reason was to be found in the unusual dryness of the soil. It is a common saying with old and weather-wise persons, when there comes an early cold spell: "Winter hasn't set in, because the springs ain't filled up." In general, there are copious fall rains in preparation for winter. In the winter referred to, evaporation went on as usual; the drying winds took up the moisture from the foliage of the evergreens; this drew upon the moisture in the twigs, branches, and trunk; then the roots were called upon for a supply; the roots drew upon the soil for moisture, the draft was not honored—"no funds," was the return. The soil was as a dust heap, it could not help the trees, and they perished—absolutely dried to death, as much as if they had been dug up in August, and left to dry in the mid-summer sun. This is the whole story of that memorably disastrous winter. As we write, late in October, it would seem that another such winter is imminent.

**What Can be Done**

to prevent or avoid similar disasters? On a large scale I fear very little; with individual trees and choice specimens, much. A gentleman of my acquaintance, a most enthusiastic tree-planter, has recently received from Europe many choice evergreens—among them a single specimen that cost 20 guineas. Had I such trees, or any others that I especially wished to secure against impending danger, whether newly planted or long and well established, I should, as the only resource, mulch quite heavily. I should mulch, if for no other reason, for the sake of feeling, should disaster come, the dead and sapless bodies could not reproach me with: "it might have been." My reason for proposing to

**Heavily Mulch the Evergreens**

is this. If the surface of the ground gets frozen before there is any considerable fall of rain, the rains, when they do come, will fail to soak in, and of course do no good. If the surface around the trees is well mulched, all beneath the covering will for a long time be kept from freezing, and all the rain will be taken up by the soil. I doubt not to the saving of the tree....An autumn like the present in freedom from all hard frosts is grand for all

**Late-Blooming Plants.**

Rarely have Chrysanthemums made such a show; the Cannas, usually nipped very early in their career, have given an idea of how they behave in subtropical gardens, and so with Geraniums and many others....Several years ago I asked my friend, Josiah Hoopes (H. Bro. & Thomas, Westchester, Pa.), which he regarded as the very best single ornamental shrub; he promptly answered,

**Hydrangea Paniculata Grandiflora.**

I have ever since been trying to propose a better, but I do not know another shrub with so many elements of popularity as this. Hardy, showy, a long while in flower, and easily propagated, this Large-flowered Japanese Hydrangea is a most capital thing, and never has it been finer than this fall. In ordinary seasons the frost catches it just as the flowers are making the transition from their pure white to rose-color, and gives them a brownish tinge, but this time the change was complete. I saw at Ellwanger & Barry's, in Rochester, an enormous mass of these shrubs, 20 or more feet across, all in full flower; as it stood isolated upon a perfect lawn, it was worth a long journey to see. Apropos of this plant: it is not generally pruned sufficiently. It is most manageable, and we can have a much-branched shrub, covered with a profusion of medium-sized clusters, or a few branches, each terminated by a panicle so large that stakes are needed to support it—it is all a question of cutting....Among other plants that appear to have enjoyed the prolonged autumn is

**The Japanese Eulalia,**

the tall and lovely grass, called *Eulalia Japonica variegata* in the catalogues. This blooms so late that the panicles often have their development arrested by frost, but this time they have shown what they can do if let alone. Our circular clump, 10 feet or so across, is a dense mass of the pale variegated foliage, and 6 or 8 feet high, above which the feathery panicles, at first dark-purplish and then light-gray, wave their spray-like branches in pleasing contrast, making the mass most attractive to passers by.

**The Fruiting of Akebia**

was announced some two years ago as having occurred in Delaware, for the first time in the country; though the *American Agriculturist* had figured the fruit produced at Morrisania, N. Y., in 1869. I have a vine now 10 years planted, which has given an abundance of its exquisitely fragrant flowers each spring, and this year it fruited. The statement, left as it is, is true, but we are expected to tell the whole truth, and that requires me to say that there was just *one fruit*—a sample as it were—this being approved, we have hope of more hereafter. I drop a note here to say to those who wish to plant a neat, pleasing, almost evergreen vine—try the Japanese Akebia.... We might expect as a result of this autumn weather, an unusual amount of

**Beauty of Autumn Foliage,**

but in this part of the country the autumn colors are, for the most part, much less brilliant than usual, or quite wanting, though correspondents inform me that the Alleganies are gorgeous "beyond compare." I attribute the general dullness of the trees here, to their drying up before they get fully ripe; the fact that exceptional plants, in favored places, are as bright as possible, gives support to this view. I sometime ago suggested that in the planting, autumn effects might be provided for, and the colors of trees in the fall might be considered as well as their form and expression. In this I had large places in view. The past autumn I have more than ever before, noticed the colors of shrubs at this season, and I am convinced that groups of these may be planted, even in small places, with a view to their appearance when in the "full meridian of their glory."—In combination with these shrubs, those with brilliant berries might be used—or perhaps it would be better to make distinct clumps of these, as the effect of the berries would be lost amongst so much high color....For some few years we have had a shrub in our grounds,

**Osbeck's Sumach,**

that has pleased me much, by its generally robust aspect, and the healthy vigor of its dark, thick leaves. The plant is a native of Japan, and has been called, in some European continental gardens, *Rhus Japonica*. I came across it several years ago at Ellwanger & Barry's. Its leaves resemble those of our native Dwarf Sumach (*R. copallina*), in having the common petiole winged between the leaflets, but are much larger and without the shining surface of the other. Prof. Sargent informs me that it flowered with him this year, and that it is still more attractive in bloom.

**But its Autumn Leaves!**

It takes on yellow, orange, and scarlet, which are blended into every intermediate shade, and all with a brilliancy and richness of color that, should I use adjectives to adequately describe it, I should seem extravagant, while the printer would use up all his exclamation points and get "out of sorts."

# THE HOUSEHOLD.

☞ *For other Household Items see "Basket" pages.*

## Ferns in Room Culture.

As the majority of ferns which thrive so beautifully in the atmosphere of the greenhouse, and fernery, soon perish in the dry air of the dwelling-room, many think it is not possible to grow ferns in rooms, except in a Wardian case, or fernery. This is a mistake. Ferns are so varied in their natural localities, that it is not difficult to select species which will flourish under almost any conditions. There are two exotic ferns, that will grow in the window, as well as any other plants. There are no common names for them, and we give those by which they are known to the florists. One is, *Pteris serrulata*, and the other, *Pteris Cretica albo-lineata*. The genus *Pteris* (pronounced *teris*, as if the P was not there) is the one to which our common Brake belongs; both these species are from Japan, and being among the easiest to grow, are sold at moderate prices; they may be had from 25c. upwards, according to size. *Pteris serrulata* has handsomely cut bright-green fronds, while the other has a distinct white stripe running through each division of the frond, as seen in the engraving; this marking gives the plant a very pleasing appearance. These may be grown in an ordinary pot, in a vase, or hanging basket, and will succeed if a few simple conditions are observed. The soil must be properly drained; use good loam with sand, broken pots, or bits of charcoal, or cinders, to keep it open. Give water when needed. Wash the dust from the fronds frequently, by liberal showering, and, lastly, and the most important, keep them free from insects.

JAPANESE BRAKE.—(*Pteris Cretica*, var. *albo-lineata*.)

## Excellent Glycerine Ointment.

A very good preparation of glycerine to have always on hand, can be readily prepared by any apothecary or druggist: In two ounces of Sweet Oil of Almonds melt, by a slow heat, half an ounce of Spermacetti, and one drachm of White Wax. Then add one ounce of good Glycerine, stirring until cold. When cold, scent it by stirring in well a *little* Oil of Roses. Keep in small jars or small wide-necked bottles. In hot weather keep closely corked, as it sometimes gets a little rancid if long exposed to warmth. Half or a fourth of the above quantities may be used. Every drug store should keep a jar of it, and recommend its use. It is excellent for softening the skin, for most injured skin surfaces that are not open sores; for chafed places, for moistening corns or callused feet or toes, and especially for chapped face, lips, or hands. When the hands are chapped or cracked, or roughened by cold, wash them clean with soap, and rub them well with this glycerine ointment, wiping it off enough to prevent soiling clothing. If this is done at night, the hands will be soft and

in good condition in the morning, except when deeply cracked. It is very good to apply to the hands after "washing-day." This is an excellent preparation to use by those afflicted with the distressing trouble known as hæmorrhoids or piles.

## Decorations for Home and Elsewhere.

In the October number, page 390, reference was made to the gathering of leaves for purposes of decoration, and in the last issue (November, page 471,) some of the most showing autumn berries were described. The season of collecting these is over, and we now come to not the least interesting part of the work, that of the arrangement. To so place the gathered treasures that they will show to the best advantage requires skill and taste, for what may suit one person will not please another. We give a few designs which, when made of a size to correspond with the surroundings, will be found pleasing in any room, be it church, school-room, or the home. The Harp, figure 1, is made upon a foundation, consisting of a wooden frame and base, with small strips of lath for the strings. The size of the harp will depend upon the place it is to occupy; for a mantel, it, of course, should be smaller than when used to decorate a large hall. The largest one we have seen was eight feet in hight, made of boards and lath strips. The frame was covered with different and many-colored leaves; Arbor Vitæ was used for the base, and the lath-strings covered with the bright red berries of the Climbing Bitter Sweet, or Wax-work. This harp was suspended in a church by a fine wire, and held in position by invisible side wires, and appeared to stand in mid-air, somewhat back of and, above the pulpit. The same design may be used for wall decoration, making the background or frame from paste-board or heavy card-board, to which the leaves and berries may be fasteued. After it is finished, a few small tacks driven into the wall will serve to hold it securely in its place.

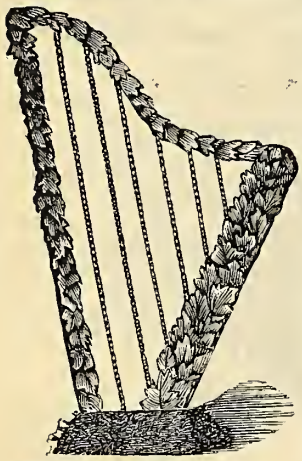


Fig. 1.—DESIGN FOR HARP.

Another pleasing design is the ancient Lyre, figure 2. This being symmetrical, that is, alike on both sides, it is to many a more pleasing figure than the harp. Its construction, both as to frame and covering with leaves and berries, is much the same as for the harp. The strings will be fewer, and may therefore be made broader. Another design is the *Cornucopia*, two of which are shown in figure 3. These *horns-of-plenty*, like the other designs, are made of any size from one foot in length, for ordinary rooms, to giant ones of six feet or more, to decorate halls, churches, etc. The back is flat, and is cut from stiff paste-board, and the front is made of heavy wrapping paper that will bend, and be sufficiently firm to hold its place. This outside should be cut after the back piece as a pattern, with an allowance of some space on both sides, this being the greater the nearer to the larger end, in order to give the form of the *horn*, when the two pieces are stitched together. The front surface is decorated with colored leaves and gilt bands. The cornucopias are fastened to the wall by tacks or hooks, one on either side of some large object, as a picture, the lower portion of the *cornucopia* turning away from the center. The horns should be represented as full; a loose cluster of fine grasses is appropriate, with here and there a bunch of red berries, or whatever else taste may suggest. The grasses and other objects should be light, loose, airy, and, to our taste, not artificially colored.

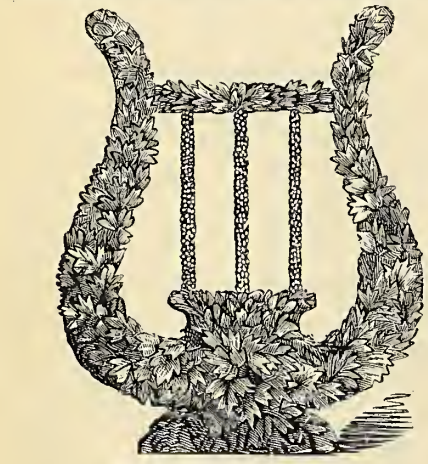


Fig. 2.—A LYRE OF LEAVES.

Fig. 3.—CORNUCOPIA DESIGNS.

## Home Topics.

BY FAITH ROCHESTER.

### Sunday Morning

in many homes is the worst morniug in the week. On other days work and school require early rising and prompt action. The regular routine is usually broken in upou on Sunday morning. All wish to have their sleep out. The mother of youug childreu has little share in this extra sleep. Indeed, it is hard to see when she can get any chance to make up for broken rest and abbreviated hours of sleep, for babies wake up as early as usual on Sunday mornings, and the actual cares and labors of that day, which is to be one of "rest" to some of the family, make it impossible for the home Manager to doze away the morning hours. She remembers a bit of meuding which surely ought to have been done in preparation for a Sunday-school outfit; shoes that have lost some of their buttons; a little suit should have been sponged with Ammonia Water before this Sunday came; the fact that Katie has not a single pair of clean stockings left in her drawer, or that she has forgotten to have John get himself some new collars—something of this kind is pretty sure to haunt the weary brain of the mother of a numerous and growing family. She blames herself for negleet when she ought not, and perhaps feels more or less of discouragement.

Let me, right here, put in a word of sympathy and encouragement. I know what I am writing about, having had abundant experience. Let no woman, overburdened with cares and labors, imagiue that her case is peculiar, and by no means let her envy childless mothers or unmarried women who have more quiet and leisure. There is no other way out of the hard place in which she finds herself, except to go ahead and do the best she can and have hope for the future. With intelligent care and judicious training now, these little ones who add to the present labors, will all, in a few years, become helpers. But they will not grow up to it naturally, they must be trained by "line upon line and precept upon precept," and especially by good example.

When I advise the weary and disheartened mother to persevere and simply do the best she can, I by no means intend to advise her to try to do all the work she can. That may be the worst she can do, by breaking down her health and adding to the cares and toils of others. There is such a thing as wise selfishness. I remember an old lady whom I met at a railroad station several years ago. Observing my two little children, she began to ask me about my family. She was the mother of thirteen children, and, in answer to my inquiries, she told me that the hardest time to get along with her children was when there were ouly three of them, as none of them were able to help her. I have found, in my own experience, that five are more easily taken care of than two small ones. What a relief it seems when some of them are old enough to dress themselves, and to get ready for church or Suuday-school with only a very little help and watching. Soon they are able to attend to their own buttons and darning. By this time they help about the house-work, and mamma begius to find some rest on Sunday, as well as the others. When there is a good deal to do on Sunday morning, as there is apt to be where there is a large family and insufficient help, it is only fair that the father of the family should lend a hand about the house. Why cannot he dress one or more of the little ones? He ought to be able to help about all that buttoning and tying which usually fill up the mother's time, and make it such a tiresome thing for her to get ready for church herself, or to fit the little ones out for Sunday-school.

Evidently it is the part of wisdom to have everything done in preparation for Sunday that can be done in the week preceding. Our Puritan forefathers set us a good example in this respect. We think they carried matters too far at times, but we do well to learn what we can from their example. If the children can have their baths and clean clothes on Saturday afternoon or evening, it is so much clear gain. If there is cold meat for slicing or for warming over, plain baked pudding and plenty of the most nourishing bread, and vegetables of easy preparation without the mother's labor, it is a good thing...Many persons are strong friends of

### Christmas Trees.

These are very well in their way, sometimes very well indeed, but I do think the tree business is often overdone. We found that we could not manage the tree in our family, for many reasons. We love to keep all our little secrets from each other until the time for the grand *jubilation*. And then we want to make such presents as will give the most lasting pleasure, considering their cost, and often these are quite unsuitable for a tree. The tree tempts to extravagance, or to an outlay for merely *showy* toys. If one family of children have a gaily decked Christmas tree, their neighbors feel that they must have one, as no one wishes to be outdone by others. I do not know the origin of the Christmas tree. Within the last twenty years it has grown from very small beginnings, and spread itself wonderfully in this country, until of late its popularity appears to be somewhat on the wane. Yet present-giving is as popular as ever. There is room for great improvement in this, all in the way of consulting the happiness of others, rather than our own praise and pleasure.

But I do uot like to be thought wholly opposed to Christmas trees. They are sometimes so well managed that no fault can be found with them. In some families, the same decorations and ornaments are kept and used from year to year, and very pretty effects are produced by the arrangement of the dolls, soldiers, horses, and other animals about the grounds underneath the tree, where bits of looking-glass simulate water aud where flowers seem to grow among the moss. Trees arranged in this artistic manner are often kept on exhibition through the Holiday Week, with pleasing effect.

I like the Christmas *stockings* best of all, perhaps because of long habit and early associations. But there is every year much happy expectation and genuine wish to please among my little flock as each one hangs up a clean stocking on going to bed, and puts parcels done up in paper so as not to show the shape of the contents into the other stockings, or hangs them on the same nail as the

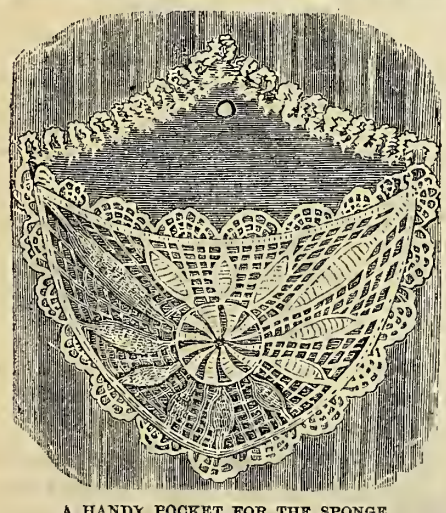
stockings if they are too large to go inside. Then what happy shouts and rejoicings together as these stockings are taken down and explored on Christmas morning! It often happens that a little one is so engaged in watching the others as they open the gifts he made, that he forgets his own stocking until reminded of it by the others. One of the best things that Christmas does for us is to strengthen our family love, one for another, and at the same time it enlarges our sympathies, making us feel more than at any other time of the year, that we are all one kind or kindred, all one great human family who should love and help each other.

### After Christmas.

Parents are slow to learn by experience, and so they go on, year after year, preparing their children at Christmas for sickness after Christmas. They feast them on rich and indigestible food, and fill their stockings with unwholesome confectionery. They see no connection between this abuse of the stomach and the childrens' diseases that follow. I hear mothers say that their children can eat anything almost without injury—"nothing he eats ever seems to hurt him"—and I can see those same children the victims of croup, diphtheria, sore throat, worms, headaches, and all sorts of derangements of the system which are no less the result of bad food (in part at least) than are diseases more directly of the stomach and bowels. Highly seasoned food and confectionery make children irritable and dull about learning. The digestive organs take most of the vitality, and leave the brain too feeble for much activity. The child who is "not injured at all" by candy, cake, and "condiments," may be the most troublesome pupil in school, and heedless and irritable at home. If we would have our children escape sickness we must supply their stomachs with plenty of plain nourishing food, and avoid those things which disturb the digestive organs. Doses of physic are called for after the parcels of candy. With all the concentrated sweets or sours, a little should be made to go a great way.

## A Pocket for Sponges.

Persons who use sponges are often at a loss for a good place to keep them. In the engraving we give a style of pocket that will serve the double purpose of use and beauty. The one represented, is crocheted of tidy-cotton, and may be made of any desired pattern. The front should be coated with shellac-varnish, which may be done by spreading



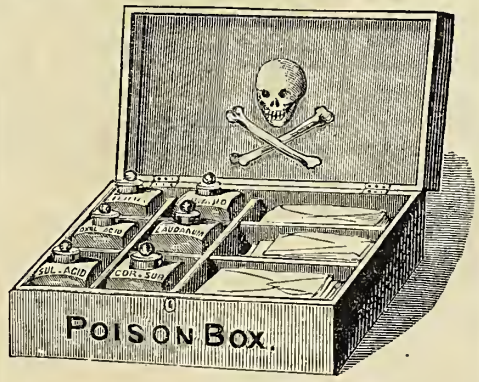
A HANDY POCKET FOR THE SPONGE.

the crochet upon a board or stiff paper, and using a brush. This makes the front stiff, shuts out the water from the material, and renders it much easier cleaned. A new coat of varnish can be added from time to time. The back of the pocket is best made of thin oil-cloth, of a color and figure to suit the taste. Generally the pocket may be most conveniently hung on the wall at one side of the wash-stand.

**Javelle Water.**—Chloride of Lime 8 ounces, Pearl-ash 1 pound (if Pearl-ash is not readily obtained, use 1 pound and 4 ounces of Saleratus instead), Water 6 pints. Dissolve the Pearl-ash (or Saleratus) in 2 pints of the Water; gradually moisten the Chloride of Lime, stirring to break up all lumps, adding more water, until 4 pints are mixed with it; let this stand until the dregs settle and the liquid becomes clear; then pour the clear liquid into the solution of Pearl-ash; the liquids, on mixing, will become milky; allow this to settle, and then pour the clear liquid off from the sediment; this is the Javelle Water, which is to be kept for use in well corked bottles or jugs; if in bottles, they should be placed in the dark. The solution and mixing may be made in glass or stone-ware, or in wooden vessels, but no metal, save iron, should be employed. This may be used to remove fruit or other vegetable stains by wetting the spots with it, then rinse in clear water before using soap.

## Household Notes and Queries.

A Poison Box.—The use of poisons for the destruction of insects, and other purposes, is so frequent, that all possible precautions should be taken that these deadly agents do not destroy the life of members of the family. An uncle of the writer was killed by taking a dose of medicine (as he supposed) from the wrong bottle (Corrosive Sublimate), and thousands of such instances occur where life could have been saved by the exercise of proper care. All poisons should be put by themselves in a Poison Box, and the box put where no one can get at it unless specially sought for. The many mistakes in administering a poison instead of a remedy, should teach that poisons should never be placed near the harmless medicines. Glaring labels are not enough, the poisons should have an *out-of-the-way place of their own, and always kept there.*




A BOX FOR EVERY HOUSEHOLD.

Ink on the Carpet.—Ink freshly spilled upon the carpet should at once be taken up with soft paper or a slightly damp sponge, or even a damp cloth, care being exercised not to spread the spot. After all is taken up that can be, wet the sponge—after first washing it clean—in warm water, and thoroughly scrub the spot on the carpet. When no more can be washed out, wet the spot with a weak solution of Oxalic Acid, and, after a few moments, wash off with cold water, and finally sponge with a weak Ammonia Water, to neutralize any of the acid that may remain in the carpet.

Chapped Hands.—The cold, raw winds of early winter often produce chaps or cracks in the hands of those exposed to it, which are very disagreeable, and often quite painful if they are deep. A friend recommends the following: The hands should be kept clean, and frequently washed in Borax Water, and afterwards rubbed with melted Suet and Glycerine, half and half. At night, apply plenty of this mixture, warm it in by the fire, and put on a pair of old kid or other gloves before retiring.

Sponges.—There are few things of more importance than a sponge in the household, in fact, each member should have one. But having and *keeping* one are different things. It is often the case that sponges become slimy and worthless from neglect. A sponge should be thoroughly dried after using it; if it were only well squeezed out, it would be better than letting it remain filled with water. An old and unpleasant smelling sponge may be renovated by soaking in a solution of Washing Soda, and afterwards thoroughly washing and drying it.

# BOYS & GIRLS' COLUMNS.

### The Doctor's Talks.

Last month I had a little to say about Falling Bodies, and this, you know, is a part of the subject of Gravity, about which many things must be left unsaid, but of which you will read when you get older. There is, however, one application of gravity and the laws of falling bodies in such general use, that I must say something about it, and this is seen

IN THE PENDULUM.

If we suspend a ball, or other weight, by a string, as *a*, figure 1, it will hang perpendicularly; if we now carry it to one side, as to *c*, and let it go, it can not fall directly downward, but, being confined by the string, it will fall in a curve. But instead of stopping at the point, *b*, whence it started, it has acquired velocity enough to carry it to *d*, as far from the perpendicular as *c* is. It will then fall back, and go to *c* again, then back again, and so on. It would keep on in this way, were it not for the resistance of the air, as will be explained at another time. The portion of a circle through which the pendulum moves is its *arc*, and the movement of the ball or pendulum its *oscillation*. In our clocks we use the pendulum

AS A MEASURER OF TIME.

The story is told that Galileo, the famous Italian philosopher, being in a church one day, noticed that a chandelier, hung from a lofty ceiling, moved back and forth with great regularity, and it is said that this led him to the invention of the pendulum for measuring time. The simple pendulum is a weight attached to a rod; the weight is usually made flat, so that it will have but little resistance in passing through the air. There are several laws which govern the vibration of the pendulum, but we need consider but one at present, and this you can show by a very pretty experiment. This law is that the time of vibration depends upon

THE LENGTH OF THE PENDULUM.

The short pendulum will beat much faster than the long one. Take three bullets, and hang them by threads as in figure 2. This may be easily done by cutting a small slit in the bullet with a strong knife, laying the thread in the slit, and then closing it up by slightly hammering upon the cut. By setting these in motion, you will see that, while the lower one beats very slowly, as if it had a plenty of time, the upper will go as if in a great hurry. If the length of the first pendulum be (along the dotted line) one foot, the second four feet, and the lower one nine feet, and they are set in motion at the same time, the upper pendulum will make three oscillations, while the lower makes but one, and the middle one makes one and a half. This illustrates a law of vibration, which is difficult to give here; I only introduce it that you may see that the length of the pendulum makes the vibration quicker or slower. Even a little difference in the length of the pendulum is of importance when it is

USED AS A TIME MEASURER.

In clocks, the weight is called the "bob," and the wire, or whatever the bob is hung by, is the "pendulum rod." If the rod remained always of the same length, the beats

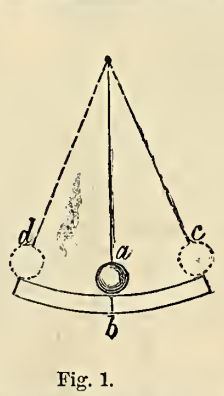



Fig. 1.

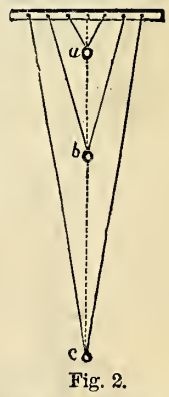



Fig. 2.

would be the same. But being usually of metal, the rod is longer in warm weather, and shorter in cold, for no doubt you all know that metals expand with heat and contract by cold. Hence in even the commonest clocks there is a contrivance for making the pendulum longer or shorter, usually by means of a screw at the bottom. The length of a pendulum beating seconds is 39 inches and a fraction (39.1393 inches), one to beat half seconds, will be about 9¾ inches (9.7848 inches). Many ingenious attempts have been made to make self-regulating pendulums, that shall be of the same length in all temperatures. These are very necessary for very nice clocks.

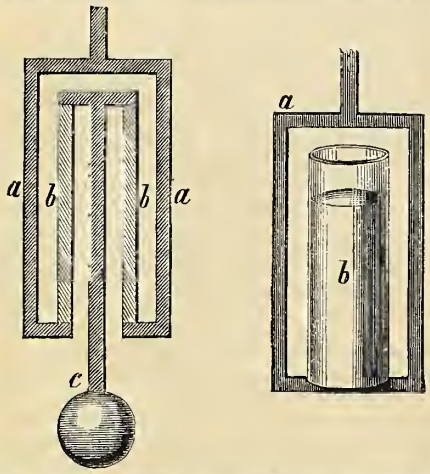
THE GRIDIRON PENDULUM

is one frequently seen. The principle upon which it acts is shown in figure 3. Here, the parts shown in black are of steel, while two upright pieces are of brass. It will be seen that when the steel expands, the bob will be lowered, but the brass also expands, but as it expands dif-

ferently with the same amount of heat, it counteracts the other, and the pendulum remains of the same length. For clocks where the greatest accuracy is required

THE MERCURIAL PENDULUM

is generally used. This has a tall glass jar nearly filled with mercury for the bob, as in figure 4. When the pendulum rod expands the bob is lowered, but the same heat causes the mercury to expand, but being confined in the jar, it must expand *upwards*, and compensate for the lengthening of the rod. Some one has said that every




Figs. 3 & 4. GRIDIRON AND MERCURIAL PENDULUMS.

American boy of 16, knows how to take apart a clock and put it together again. This may not be quite true, but most boys, if given a chance, will be very sure to make it half true, by taking the clock apart. Any of you who have done this know how the pendulum is arranged in the clock, and those who have not, can learn it by carefully watching a clock while it is going. You know that the hands are set in motion by the power of a weight. The fall of a weight moves a wheel; this motion finally reaches the hands through several wheels, called a *train*. When the weight is wound up, its tendency is to run down, and were there nothing to check it, the wheels would buzz at a rapid rate, causing the hands to move as fast in a second as they should go in an hour. The weight must be let down gradually, and this is what the pendulum does: it lets off the weight a little at a time. At each beat of the pendulum the wheels are allowed to move a little, at the next movement, a little more, and so on. The contrivance by which the pendulum lets off the power of the weight, a little at a time, is called an escapement, and without this the pendulum would be of no use. There are several forms of escapements, but that shown in figs. 5 and 6 will answer to explain the matter. Figure 5 shows the pendulum, the escapement, and the scape-wheel.

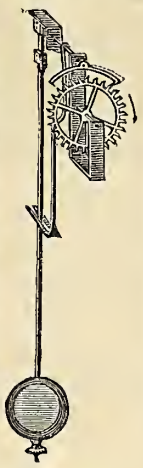


Fig. 5.

The escapement is connected with the pendulum by a separate rod with a forked arm. The scape-wheel is connected with the train or works of the clock, not shown. An escapement of a little different shape, but the same in action, is shown at figure 6, with the parts much larger. The wheel with slanting teeth is of course connected with the other wheels of the clock. The arched body above is the escapement, and is attached to the pendulum, a part of the pendulum rod being shown. The pendulum being swung to the left, the right hand end of the escapement (*b*) is caught in a tooth of the wheel; when the pendulum swings back, this end of the escapement will be liberated and the wheel will start, but it can not go far, before the arm, *a*, will catch in another notch, and stop it; by the continual vibration of the pendulum, *a* and *b* will constantly stop and let go the wheel. The ends of the escapement are termed *pallets*. In time the pendulum would stop, from the resistance of the air, and other causes, were there not some contrivance for keeping it in motion; the shape of the teeth upon the escape wheel and the form of the pallets is such, that at every beat the wheel gives the pallets, and through those, the pendulum, a little push, as it were, though very slight, but enough to keep the pendulum in constant and steady motion.

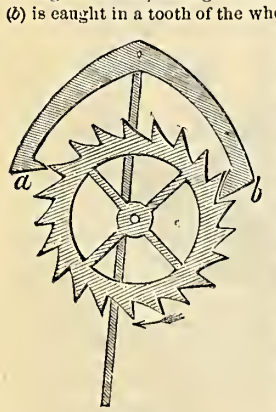



Fig. 6.

## Tricks with Coins.

The evenings are getting longer, and the cold weather makes the fireside comfortable. What is more amusing, and, we may add, instructive, than tricks of magic: the mystery which surrounds any such acts often makes the youthful mind active, anxious *to know how it was done*, watchful, and earnest. We can not give a history of magic art. In all ages of the world there have been persons who could do strange things, and for it they have frequently been considered more than human. We have persons in our own age who are called "magicians," "prestigiators"—what a name!—"jugglers," "sleight-of-hand performers," "legerdemainists" (which means to be light or nimble with the hands), and other long names, by all of which we are to understand that they can do certain tricks which at first seem very strange to us, but after we know how to do them are simple enough.

There are tricks with a great variety of things, but we will now look at two or three with coins. The most common one is to throw a cent up the sleeve. The cent is taken between the thumb and forefinger, as shown in figure 1, when, by a sudden snap, the cent is *sent* flying up the sleeve. Of course, to make the most of this trick, as of any other, one needs to talk very much and make many motions with his hands, which have nothing to do with the trick, except to mislead the lookers on—an art in which the magicians are very expert and successful. If a coin is concealed in one hand, and the one in the other shown, by a few passes, the latter may be thrown up the sleeve, when, by opening the other hand, and showing the coin that was concealed, it will appear that the coin has passed from one hand to the other, but how, no one looking on can tell—at least, can not see "how it's done."

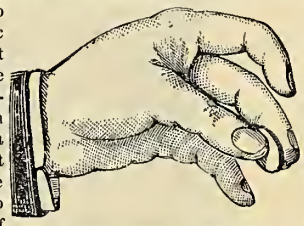


Fig. 1.—SNAPPING THE CENT.

The sleeve trick may be followed by another which at first is quite mysterious. The person performing this trick, to increase the curiosity, may say: "You probably have all observed that the last trick was performed by throwing the cent into the sleeve, but to convince you all, that this is not done in that way, I will remove my sleeves, etc., etc." The coin is placed in the palm of the hand, and by passing the other hand over it rapidly the cent is gone. A small piece of wax is placed on the nail of the middle finger of the hand holding the cent, and while the other hand is passing over, the finger is brought up, as shown in figure 2, the coin sticking to the wax, and as the finger goes back the coin is carried away from the palm of the hand, and out of sight.

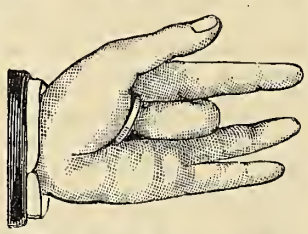


Fig. 2.—WAX, COIN TRICK.

One of the most deceptive tricks we have seen, and one that we did not understand until it had been done at least a dozen times before our very eyes, is performed with a coin and a handkerchief. The handkerchief has a coin sewed or "patched in" at one corner, and to show that there is nothing (?) to begin with, in the handkerchief, it is shaken out with the thumb and finger holding the corner containing the coin. After this, the handkerchief is spread over the lap and the coin (borrowed from some one present, and of the same size as the one in the corner) is placed upon the center of the handkerchief, and the corners are then folded over it (?) in the way shown in figure 3. As the first corner (the one with the coin sewed in it) is brought up the other coin is removed—this part is done very rapidly!—and the other corners are thrown up, when the handkerchief is handed to any one to feel that the coin is still within. So soon as all are satisfied that the coin is there, the magician rubs the handkerchief, and of course blows upon it—there is great virtue in *blowing*—and says, "*Presto*" (which is the Spanish for *quickly*) "*Change*." As this is done the handkerchief is shaken out, the thumb and forefinger holding it by the coin end. The audience may feel of the handkerchief, but it should not go out of the hands of the performer—at least not the coin corner. Sometimes the trick is varied a little, the handkerchief being put under a hat, and the coin that was supposed in it, shown to be elsewhere, followed by the same strange and disappointing shaking out. There are a number of other tricks with coins, some of which these mentioned may suggest to the older of our Boys and Girls; but let us try these first.

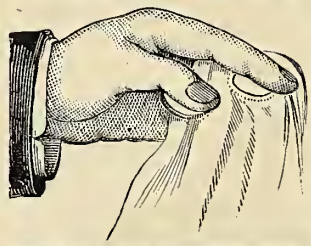


Fig. 3.—HANDKERCHIEF TRICK.

## Our Puzzle-Box.

ANAGRAMMATICAL OMISSIONS.

(Fill the blank with one word made from the italicised words just preceding it, so as to make sense of the sentence—*e. g.*, *Fan's blushes* arise from ——. The letters in italics may be transposed into the word "bashfulness.")

1. *See mine* —— have gone.
2. *Does Ed. try* to repair the fences he ——?
3. A man *laughs not* at such a fearful ——.
4. I think it is a *fiction, Lady Nel*, that you were told —.
5. You may well *lament, love*, if the man is so ——.
6. *One can not stir* without producing ——.

BIBLICAL DOUBLE ACROSTIC.

The primals name a celebrated Queen, and the finals a Persian King.

1. An elder of Israel.
2. A province of Arabia.
3. A mountain of Palestine.
4. A Hebrew prophet.
5. A friend of Job.
6. An ancient city.

ISOLA.

METAGRAM.

In a word of five letters, which names something that many people love to do, find—(1) a post, (2) a piece of meat, (3) a girl's nickname, (4) to appropriate, (5) a repast, (6) how you take it, and (7) what you did when you took it.

CONCEALED NOUNS.

1. I saw a flag on the mast while we were gazing at the combat (6).
2. The Cuban joyfully agreed to avoid rum, and to leave off lying (6).
3. Which am I to astonish them with first? I am afraid of Ezra, he may give me a black eye! (7.)
4. If I shoot that crow, near the barn, for Kate, will you go at once and give it to her? (9.)

DOUBLE DIAMOND.

*Across.*—1. The head of a mouse. 2. A vehicle. 3. An animal in Latin. 4. A vegetable. 5. Part of the human form. 6. Another part of the human form. 7. The center of the end.

*Down.*—1. A pig's head. 2. A bird's cry. 3. A weight. 4. A building. 5. To cleanse. 6. To rest. 7. A pup's tail.

ADOLPH M. NAGEL.

NUMERICAL ENIGMA.

I am composed of 30 letters:
My 13, 8, 19, 16, 5, is a bird that is often eaten.
My 28, 27, 4, 22, 9, is meal boiled in water.
My 25, 7, 28, 26, 18, often helps to kindle a fire.
My 6, 14, 24, 17, 20, 15, is an old woman.
My 12, 11, 1, 2, 16, 24, 27, is to dismiss from office.
My 30, 3, 23, 7, 21, 12, 29, is a well-known weed.
My 21, 3, 10, is a fish.
My whole is the name of a well-known song.

ANAGRAMS.

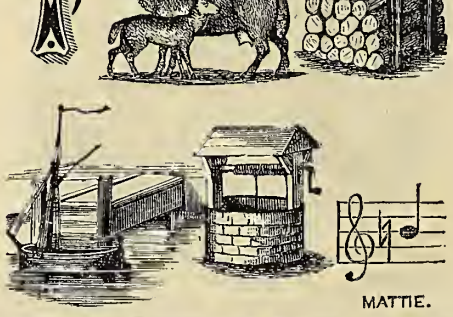
1. Use a blinder.
2. Enlist us.
3. Nut and leg.
4. Frail dice.
5. Or riding.
6. O I fine dash I
7. Pious, err.
8. A moment's cure.
9. Die, rude Pat.
10. Invite a lad.

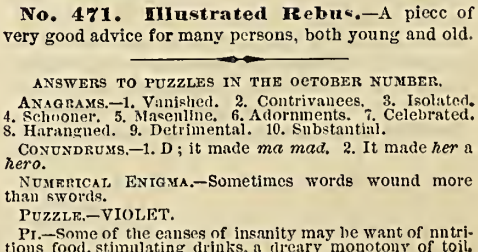
PI.

A titell noneness own dan hent,
Si shedrile yb het swites nem.

COMBINATIONS.

1. Join together—a man's name, something offensive, and a capital in South America, and make a gum.
2. Join together—a certain workman, and an abbreviation of one of the United States, and make a goddess.





MATTIE.

**No. 471. Illustrated Rebus.**—A piece of very good advice for many persons, both young and old.

ANSWERS TO PUZZLES IN THE OCTOBER NUMBER.

ANAGRAMS.—1. Vanished. 2. Contrivances. 3. Isolated. 4. Schooner. 5. Masculine. 6. Adornments. 7. Celebrated. 8. Harangued. 9. Detrimental. 10. Substantial.

CONUNDRUMS.—1. D; it made *ma mad*. 2. It made *her* a *hero*.

NUMERICAL ENIGMA.—Sometimes words wound more than swords.

PUZZLE.—VIOLET.

PI.—Some of the causes of insanity may be want of nutritious food, stimulating drinks, a dreary monotony of toil, muscular exhaustion, domestic distress and misery.

## Spiders, Spinnerets, and Cobwebs.

*Concluded.*

Many spiders build their nests in the ground, and provide them with a tube running up to the surface, through which they pass in and out. These holes vary from a few inches to a foot or so in depth, and are of several forms, some of them being provided with very ingenious

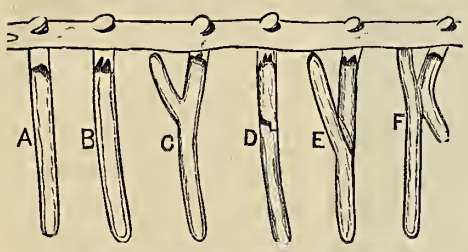



Fig. 1 —NESTS WITH TRAP DOORS.

trap-doors at the upper end. Figure 1 shows six of these tubular trap door nests. Beginning at the first one, *A* is seen to be nearly straight, with a thick door partly raised, which consists of earth fastened together by webs, and hinged upon one side. The next nest, *B*, has a thin trap-door, and such are usually covered with some leaves so as to not be easily seen. The third, *C*, is a branched nest, and into this fork the spider retreats for safety when molested. Another kind of spider has two trap-doors, one at the surface, and another three inches

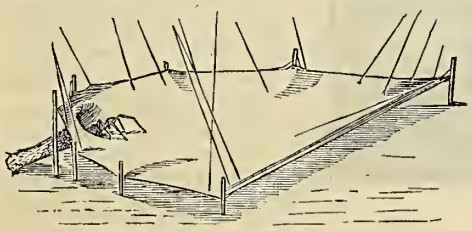


Fig 2 —GRASS-SPIDER AND WEB.

or so below, *D*. The upper side of this door looks like the bottom of the hole, and when the spider is attacked it runs below this door and pushes it up, when the enemy's advance is cut off, and it has not seen the spider, it may be deceived and go away, thinking the spider is not there. The next kind has taken advantage of both the branched-style of hole and the double trap; the lower door being at the junction of the branch with the main hole, as shown at *E*. The last one we will mention, and there are many other kinds, one of which is shown at *F*,

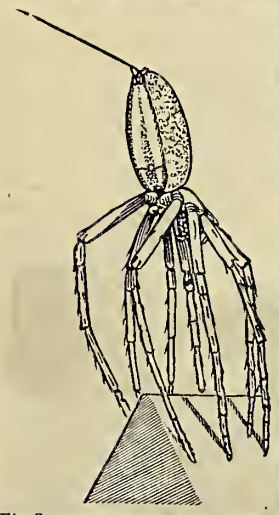


Fig.3.—THROWING THE WEB.

in which the surface trap-door is in the branch, and this branch, after uniting with the main tube—at which point is another trap door—it passes down and away from the nest. It will be observed that we have gone from the simplest to the more complex, in speaking of these trap-door spider nests. Last month we mentioned the common grass spider, that covers the stubble, and other, fields with its webs. Figure 2 represents one of these webs, much reduced in size, showing the tube at one side, at the mouth of which the watchful owner is seen standing, ready for its prey, and down which it runs at the first indication of danger.

The subject of spiders flying is one peculiar and full of interest. "Small spiders, especially on fine days in autumn get up on the tops of bushes and fences, each apparently anxious to get as high as possible, and then raise themselves on tip-toe and turn their bodies up, as in figure 3, with their heads towards the wind and spinnerets open. A thread soon blows out to a length of two or three yards, and then offers enough resistance to the wind to carry the spider away with it up into the air. As soon as she is clear the spider turns around and grasps the thread with her feet and seems to be very comfortable and contented, until she strikes against something. Sometimes they rise rapidly and are soon out of sight; at other times blow along just above the ground." This reminds one of a boy getting out on a high place back of the barn, and fixing up a big kite that will carry him off up into the air, when the wind is strong. He might be contented, also, until he "strikes against something." As only *small* spiders are able to get up successful flying machines, this is not very encouraging for such large bodies as boys. Spiders are said to go on these balloon excursions very extensively, some kinds "seem to spend the greater part of October and November trying to get as far above ground as possible."—In some cases the spider will—while making its airy balloon—provide an anchor by making fast a thread from one of the side spinnerets, as shown in figure 4, so that when it is blown away it draws out a thread by means of which it can return to its point of starting—a very wise provision, sometimes, which some larger balloonists would do well to imitate. That which has been said on the subject of flying spiders explains, in good measure, the question which has troubled so many persons, namely: How do they get a web from one high place to another? as from one pole, or tree top, to another some distance away. If a spider is put on a tall stake, surrounded by water, it will remain there as long as the air is still, but when a breeze comes it throws out a web which may be caught, if an object is near enough and in the right direction, when the spider will escape. Again, the spider may fasten its web, let itself drop, and be swung far to one side, when some object may be caught, and an *air line* established between two points. The wind is the principal aid in the spider's bridge-building.

The largest known kinds of spiders belong to the *Mygale* group, and are natives of the tropics, the largest one of which is called the Bird Spider. The body of this spider is three inches long, and its legs have a spread of ten inches. It lives upon large insects and small birds, springing upon and killing them; it is especially fond of the young of birds, capturing them in their nests, fig, 5, to the great dismay of the old birds, who can do but little to protect their offspring from these great, hairy, eight-legged, cold-blooded plunderers.

The *Tarantula* is, perhaps, the most familiar, large, and poisonous spider in the United States, which is rather common through the South, and finds its way northward in boxes of southern fruit and other like merchandise. In general appearance it resembles the Bird Spider, and is closely related to it, probably a first or second cousin. It builds no web, comes out on its raids by night, and captures and lives upon the larger insects.

We must not close without saying a word for the little ones, that is, the young spiders. The eggs, after they are laid, are covered with "silk," the spider drawing the threads over from one side to the other, and fastening them, forming a cocoon in which the young remain until sometime after they are hatched. The cocoons are attached to the surface of stones and other like objects, and are familiar to most people in the country, and, in fact, everywhere. Many spiders remain by their cocoons, while other kinds die before their young are hatched. The most noticeable method of caring for the eggs is

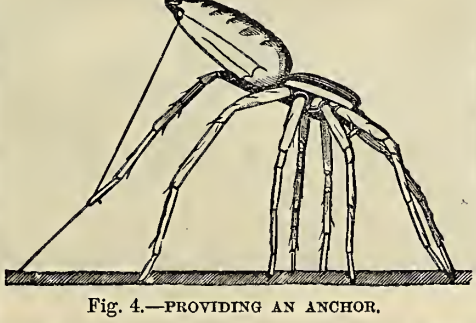


Fig. 4.—PROVIDING AN ANCHOR.

that shown in figure 6, where the cocoon is in the form of a sphere, and attached to the end of the body by the spinnerets. It is certainly a peculiar sight to see these spiders running around with this ball of eggs, half as large as the spider itself, bumping about; but it seems far more motherly, than in the case of those who put their eggs on the side of a cold stone and leave them there to hatch out as best they may. The majority of mankind will continue to look down upon spiders, and step upon them when an opportunity is offered. Their disposition, which we have seen, is to capture innocent

Fig. 5.—THE BIRD SPIDER.

creatures by sly and unforseen ways; they are not frank and open in their dealings, even with their friends, for it is a well known fact that they sometimes eat each other, with a seeming relish—a sort of cannibalism which is

Fig. 6.—EGGS ATTACHED TO THE BODY.

not particularly ennobling even among such creatures as spiders. With all the craftiness of the spider, there is a sharpness, a spider-wisdom, that makes it interesting.

## "Christmas Is Coming."

The approach of the greatest of all the Holidays is *so gradual* to the many who are looking forward to it, that it has become a by-word of slowness. If Johnnie has been at the dasher of the churn for two solid hours—I speak from experience—and the only encouragement he gets from mother as she opens the cover and looks into the white, foamy abyss, is: "It—is—c-o-m-ing" (?), the poor boy is quite apt to think to himself—if not give words to the thoughts—"and so is Christmas coming." Whenever one is anxious to have the time slip by; how it drags! If a girl is going to spend a week with a school friend it makes the days seem like weeks until the happy hour for starting comes. When I first learned that there was a fortnight of fun in store for me with some distant cousins, I could hardly breathe a breath in comfort, so great was my fear that something would happen; and when the morning came for starting I found I had not slept much the long night before, and besides, my appetite was wholly gone; but I *did* eat to show that I was well. But above all times is Christmas. The school picnic has its ramble in the woods, and the sail on the lake; the Fourth of July its noise and smoke, but, like the fire-wheel, it often fizzes out and is over; the 22d of February lets us know that the "Father of our Country" was born in a cold and disagreeable time of the year; Thanksgiving brings the scattered family home to a bountiful feast of good things; but above them all is the dear old day from which we reckon our years, the anniversary of that

brightest morn the world has ever seen, when all creation rejoiced and "the morning stars sang together."

I can not say enough for Christmas; it is not national, but divine in its origin, and is a Holiday that should be everywhere held sacred. It is the day of heart-gladdening; of giving and receiving; of happy surprises and solid fun. Old and young, rich and poor, high and low, all look forward to it with anxious eyes; and the days, weeks, and even months, are counted by the little ones, many of whom first learn to reckon by making their fingers stand for the weeks, and as it gets closer, the days, to Christmas. Is it any wonder that the days of watching and waiting should seem long, and at times as if the 25th of December would never come! But it is coming, and during all this time of gradual approach what is being done that in some measure shortens the time? This is a hard question to answer. From ocean to ocean, from gulf to great lakes, and in many other lands, thousands and thousands of persons are busy in the preparation, with warm hearts beating to the measure of "It is more blessed to give than to receive."—Many hands are employed during all the spare moments, in making nice things which no one else knows anything about, or if they do "they don't show it," which amounts to the same thing. Sister Mary is, perhaps, working on a pair of slippers for brother Henry, and is very shy at his coming, and runs to hide her work in a drawer with perhaps the excuse that she is after a clean handkerchief. Mamma is making a half dozen things for as many of her household, but finds it the hardest of the task to keep the fact from them; they suspect and expect something is going on, and act accordingly, moving about the house with their eyes shut, almost, not daring to look in any out-of-the-way places for fear of exposing some secret. What is not done for Christmas! The boys that are skillful with tools are building carts, sleds, wooden toys, puzzles, etc., and the girls with nimble fingers are getting up pin-cushions, "what-nots," and what not! And what thoughts the children have as the day approaches! Boys coast in *imagination* down the big hill on their Christmas sled, and glide over the smooth ice of the pond on skates which they hope some friend may give them. The girls rock themselves to sleep while tending some imaginary but hoped for—yes, *longed* for Christmas doll, and sing the baby to sweet repose in the expectation of the realities that Santa Claus will bring. As I stop to think of Christmas, how many thoughts fly back to those years of childhood when Santa Claus with his great, flowing, grey beard and enormous pack, fleet deer team and fast-flying sled, the entrance by the chimney, and all such things, were as real as the twinkling stars I used to watch in the clear December sky, from my chamber window, and think of the large, clean stocking hung, along with others, at the fire-place, and wonder why such a good man should do so much on so cold a night. As I indulge in these memories of the Christmas of by-gone years, the artist comes, and I ask him if he can not present my thoughts in a picture. He too has had the same experience; he has had his long nights before Christmas, when the house was still, and only the old clock could be heard, and its ticks were wide between. Here is his picture, evidently drawn from memory, of what has happened and which will happen so long as Christmas is observed and children are children. The young reader need not be very old, to be in full sympathy with the little fellow, and can no doubt, following the adage to "put yourself in his place," remember how very, very long is the night which follows the 24th of December. Of course some children are naturally more wakeful than others, but let me put the question: Isn't it hard to go to bed on Christmas Eve and stop all thinking, and go right to sleep and stay in the "Land of Nod" until late in the morning? Isn't there something about the hanging up the stocking that produces a feeling of "wide-awaked-ness"? Isn't there something in the idea that Saint Nicholas may make you a call—though you know that there is no such person—that tends to keep the eyes open and the stocking in sight? But however long the night may seem, the day comes at last, and early dawn does not find many youngsters in their beds. This makes the day longer than the ordinary; and if we add to this the extra running and jumping, the laughter and shouting caused by the new toys, the disposal of the bags of nuts and candies, the partaking of the Christmas dinner, etc., it is no wonder that by the time the day is finished the little ones are pretty well used up too. It is hard to give up the play, but, like a soldier in battle, they fall (asleep) on the field (sofa) with the wreck of the day's disaster around them. It is a pitiful and yet a pleasant sight on Christmas night, to see the little ones, tired out, yet not ready for bed, with no strength of body to play longer, but with a strong desire to "stay up just a little while," and at last fall into a Christmas sleep.—What visions must come and go, in the mind of the young Captain, in the second engraving, who has taken an unceremonious departure to a far-off land, and from which only imperfect reports return, in the disconnected words which fall from his lips. Now he is leading a charge as "Fix bayonet——quick ——dou——ck" are spoken. And again he has a company of raw recruits, and the green boys are being put through the simple movements.—Will he ever be a soldier, as he is dreaming he is! Will his sword ever be drawn to save his country (not to spoil his drum)! Will the dream-land of Christmas night, as he lies upon the sofa, come to him in reality! Rather may he, and his country, see only peace, such as is now spread over his countenance. He is at rest. The day is done. Christmas is gone.—No. Christmas is never gone. In all the ages that are to be; in the years to come when all the Boys and Girls in the great *American Agriculturist* family will be men and women, the day on which Christ was born will be sacred in memories and bright in glorious anticipations. May there be many Christmas days to you all, and may they be merry, merry ones. Let us never, never forget that *Christmas Is Coming*. UNCLE HAL.

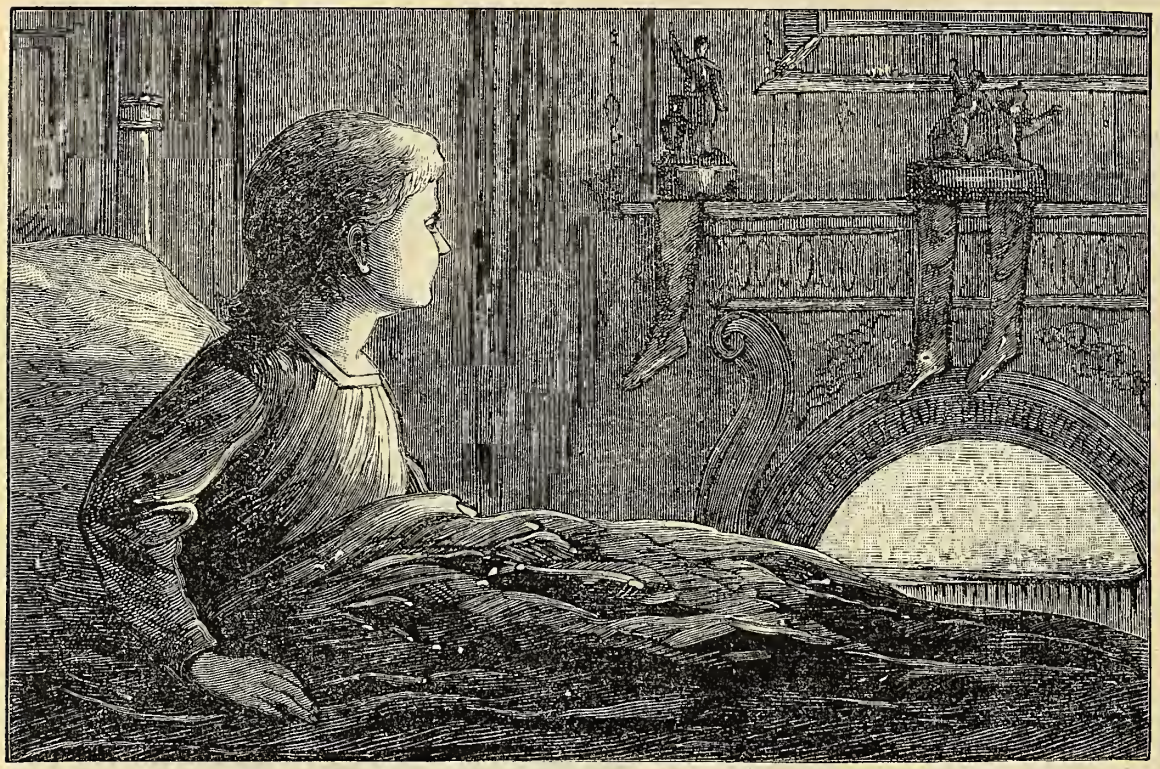


Fig. 1.—THE WAKEFULNESS OF ANTICIPATION.

Fig. 2.—THE SLEEPINESS OF REALIZATION.

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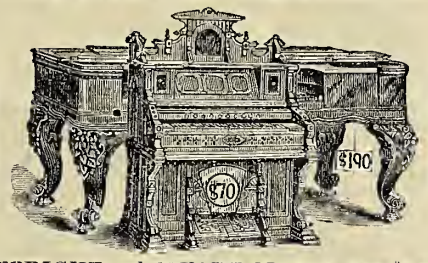


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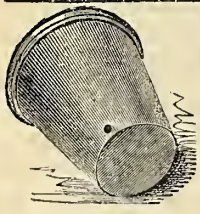

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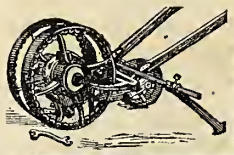

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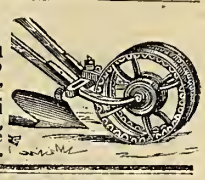

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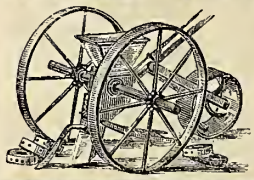

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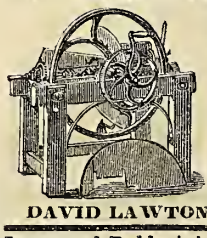

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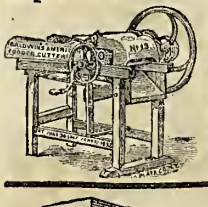

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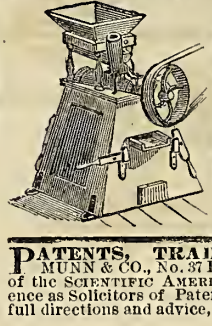

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**Cheaper** than Wooden Fences. **Imperishable** when once in place. **Indestructible** by the Elements. Wastes no soil by SHADE. Has **no Weedy Fence Borders. Shelters no Enemies of the Crops.** A **Protection** at all seasons. It is **easy of Construction.** It needs **no repairs.** Accumulates **no snow-drifts.**

## A STEEL THORN HEDGE.

An **Impassable Barrier. Prohibits all Trespassing. One-half Cheaper** than any other Fence. Material. A Machine-Twisted, Double-Strand of **Galvanized Steel Wire Armed with Steel Barbs,** that prick without wounding. The most venturesome fence-breakers at once respect Steel Barb Fence. It is the **only Fence that has ever met the demands of Sheep Husbandry.** It can be constructed **Dog** and **Wolf Proof.** As a **Pig-Tight** fence it checks the most troublesome Swine. **It can not be destroyed by fire, wind or flood. Orchardists** find Barb Fence a sure Protection to their most tempting enclosures. **Nurserymen** find Barb Fence a perfect defence without wasteful occupation of the soil. **Outlaying Exposed Fields** are securely fenced by Steel Barb Fence. **Railroad Companies** are largely using Steel Barb Fence. It is already in use by principal Railroad Companies in all parts of the United States and Canada. Everywhere Barb Fence meets all the Requisites for **the Legal Fence.** Barb Fence is recognized everywhere by **Good Husbandry** as the Cheapest efficient fence. The wonderfully **rapid adoption** of Steel Barb Fence is a signal proof of the existing previous need, and its own great merits.

**100,000 miles of Barb Fence have been Erected in the past three seasons, 1876, 1877, 1878.**

For all enclosures in the Treeless States. For a better Fence Economy in all the States. Avoiding the wastefulness and cost of **Wood Fence.** Avoiding the great expense of **Stone Fence.** Avoiding the trouble, care, and disappointing features of **The Hedge.** Avoiding the pests and nuisances of the Hedge, swarming as it invariably is with the pests and enemies of the crops. Avoiding weedy fence borders and all waste and wasteful occupancy of soil. These merits of Steel Barb Fence are rapidly commending it to the

**Agriculturists, Herdsmen, Sheep Husbandmen, Ranchmen, Vineyard Proprietors, Orchardists, Nurserymen, Railroad Companies, Road Proprietors,**

And all owners and occupants of soil and areas to be protected. **Easy of Transportation. Easy of Construction.** A single team can draw, in one load, enough to fence a large field. The common farm Mechanic can build Barb Fence.

## THE GLIDDEN STEEL BARB FENCE,

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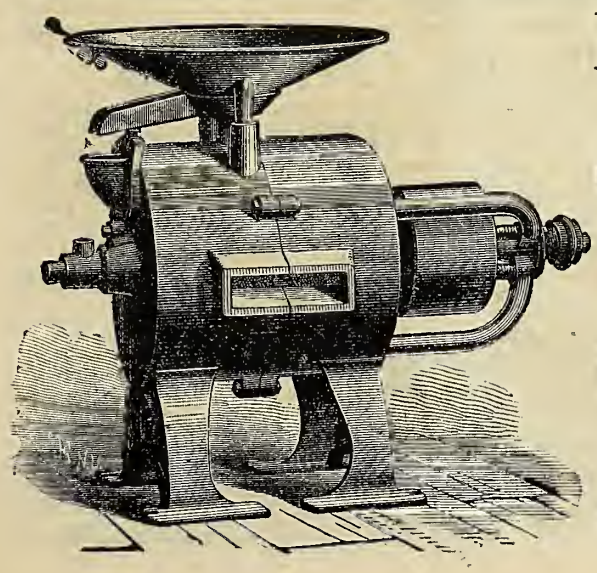

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## New 12-Inch Grinding Mill.

**Weighs only 300 lbs., and will Grind Twelve Bushels of Corn per hour!**

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Before purchasing, be sure and send for our illustrated catalogue and price list. Extra discounts given for cash with order. Mention this paper when you write. Address Estate of

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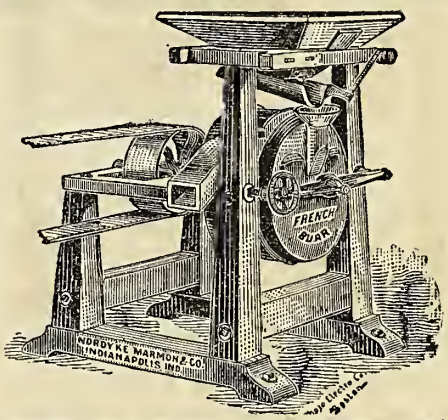


Portable Mills for Farmers, Saw Mill Owners, etc. Price from $80 up. Complete Mill and Sheller $88. A boy can grind and keep in order. Adapted to any kind of suitable power. Complete Flouring and Corn Mills. Send for pamphlet. **NORDYKE & MARMON CO., Indianapolis, Ind.**

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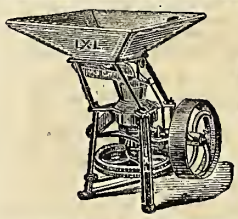


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**Cheap, Effective, and Durable.**

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Capacity from 6 to 30 bushels per hour, according to size. Send for Catalogue and prices.

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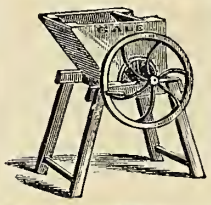

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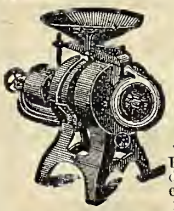

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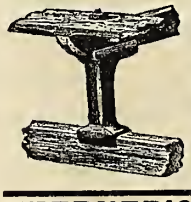

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Heebner's Improved Threshing Machines. Send for Illustrated Circulars to

HEEBNER & SONS, Lansdale, Mont Co., Pa.

# $1000, REWARD

**For any Washing Machine that will Wash Cleaner, Quicker, with Less Labor and Wear and Tear of Clothes than the**

## ROBBINS FAMILY WASHER AND BLEACHER,

*The Only Perfect Self-Operating Washer in the World.*

No rubbing required. No more yellow clothes nor hard work on washing day. No more rubbing clothes full of holes. No more lame backs for farmers' wives washing harvest shirts. Seeing is believing, and if you will try it once, you will never again wash without it, nor use any other washing machine.

*IT IS THE BEST IN THE WORLD,* and will wash anything from a lace curtain to a horse blanket, and cannot get out of order.

**Good Agents Wanted, both Male and Female, to whom Liberal Inducements are Offered.**

## AGENTS CAN MAKE FROM $10 TO $100 PER WEEK.

In bringing this article before the public it becomes necessary to take into consideration

THE ART OF CLEANSING FABRICS,

which is yet so imperfectly understood. Having had a life-long experience in the laundry business, in connection with first-class hotels, public laundries, asylums, hospitals, etc., we know whereof we speak. The numerous devices of friction rollers, pounders, squeezers, mashers, agitators, steam wash boilers, etc., have all failed in one or more of the three essential points, namely, the saving of labor, wear and tear of clothes, or in perfectly extracting the dirt and discoloration, all of which are accomplished by the ROBBINS FAMILY WASHER AND BLEACHER.

WHAT IS IT REMOVES THE DIRT?

You may ask washerwomen and housekeepers, and your answer from nine out of ten will be, "Plenty of elbow grease," or in other words, laborious rubbing upon the washboard. And such is the case, for you first rub soap upon the cloth, and then you have to rub it in to make the dirt soluble; but does that remove it? No; to do that you must dip it in the water, and rub repeatedly to force water through the fabric again and again. That is what removes dirt after having been softened by the chemical action of the soap.

The way in which this could be most economically accomplished has been developed in the FAMILY WASHER AND BLEACHER, which embodies all the above points.

It is harder work to operate these mechanical devices than to use the common washboard. They are constantly getting out of order, and wear out in a short time. They wear out clothes faster than the rubbing board, because the friction is a hundred per cent. greater.

Mechanical devices take the entire time of a person during the whole wash, and will not remove streaks from clothes. With the Washer and Bleacher, washing, baking, and housework are contemporaneous operations, the fire doing the washing and baking, while the housewife does her housework.

All who have tried steam wash-boilers, will unite with us in saying: They do not give satisfaction.

WE WILL EXPLAIN WHY.

As stated water force is what removes dirt from the fibres of the cloth. A large body of water is required to hold in solution a comparatively small amount of dirt. Steam wash boilers can not accomplish the desired result. They do not contain enough water to hold the dirt in solution. While steam will not remove dirt, it is a powerful agent to assist in cleansing, because it expands the fabric, and causes the discharge of dirt and impurities from the cloth that can not be forced out in any other way unless by the application of heat and force of water combined.

In order to remove the dirt from steamed clothes, they must be washed out in water at nearly boiling heat, for if you use water at a lower temperature, it causes the fabric to contract, which "sets the dirt," thus causing the clothes to turn yellow. An essential thing to be mentioned is the rotting of clothes by steam wash-boilers, because of the small quantity of water used.

Everybody knows that a large quantity of soap dissolved in a small body of water must necessarily form an exceedingly strong alkali, which, after the clothes are packed in the steam wash-boiler, is converted into steam, every moment becoming more concentrated, until the clothes are removed. A few such washings, and what is the result? Simply this: Your clothes fall to pieces of their own weight, and you pronounce steam wash-boilers, as they are, a failure.

THE PRINCIPLE OF THE WASHER AND BLEACHER

embodies all the essential points. First, we have the desired heat, which expands the fabric, and causes it to discharge the dirt. Second, we obtain a powerful suction beneath the clothes, which produces a rapid downward current or water-course through and through them, thereby removing the dirt. Third, we use a large body of water, which holds the dirt in solution. Fourth, we use but a small quantity of soap. Fifth, the washing is done by water, and not by steam. The process can not injure fabrics. It cleanses thoroughly, rinsing the clothes being all that is required to complete the operation.

THE CAPACITY OF THE WASHER AND BLEACHER.

There are three sizes: No. 1, the family size; No. 2, suitable for small hotels, restaurants, barber shops, boarding houses, etc.; No. 3, or steam-power washer, into which is conducted, through a ¾-inch pipe, live steam from the steam boiler, from which is obtained the power for driving the water. This washer takes the place of machinery in places where steam power is used in the laundries.

The washer is composed of metal, and can not get out of order.

The family size weighs about five pounds, and is only 8 inches long by 5 inches wide, and 1¾ inches deep.

The discharge pipe is 13 inches high over that, and is 1¼ inches in diameter. It throws water in a solid, unbroken stream at the rate of ten to twelve gallons per minute. It will work in any family boiler. It takes only three or four ounces of soap to ten or twelve gallons of water, and will wash bed and table linen, a boiler full in ten to fifteen minutes, wearing apparel in from twenty to thirty minutes, and will remove streaks without rubbing; requires no previous preparation of the clothes, such as soaking over night. We take the clothes dry, and when the washer gets thoroughly at work, we fill the boiler as full as it will hold by gently pressing them down with a stick. We use no chemicals, only good soap and soft water. If the water is hard, it may be softened by a small piece of borax, which is harmless.

For LACE CURTAINS the Washer is invaluable. It cleanses them as no other process can, and without the slightest danger of injury.

The No. 2, or small hotel size, will do the work in a boiler four times the size of a common family boiler, and wash of average pieces from 1,500 to 2,000 per day; or it may be used in any smaller boiler. They will work in anything that has a flat bottom large enough for them to rest upon.

For hospitals, this Washer is pronounced by the medical faculty invaluable, being the most powerful disinfecter known, leaving the fabric as pure as when new. By engineers, mechanics, and scientific men generally, it is pronounced one of the most wonderful discoveries in the principle of hydraulics or water-force ever brought to light. By bleachers and chemists it is said to be the most powerful method of removing dirt and vegetable matter from fabrics ever known. It is the greatest bleacher extant, and for that alone is worth ten times the price.

THE PHILOSOPHY OF THE WASHER AND BLEACHER is this: We have five pounds of metal, which attains a much greater degree of heat than the water surrounding it; consequently the water underneath the Washer becomes hotter and more expansive than in any other part of the boiler, and is thereby thrown to the surface through the tube, thus tending to produce a vacuum underneath the Washer at the bottom of the boiler, into which the water is rapidly drawn.

As it passes along the channels of the Washer, the curved and contracted throats of the same prevent its flowing backward, and being held in contact with the hot metal it becomes hotter and hotter, consequently more expansive and more forcible, until thrown to the surface, thus producing a powerful suction beneath the clothes, through which the water must pass in a rapid downward current, thereby obtaining a water force which can not be obtained by any other method known in cleaning fabrics. Thus, we get a combination. First, we have the desired heat. Second, perfect chemical action of the soap. Third, force of water—all of which are required to thoroughly cleanse and purify any fabric.

THE IMPROVED WASHER.

The improved Washer has a perfect fitting pipe, and is a combination of metals which does not become sticky or dirty. It comes out of the boiler as bright as new.

A WORD ABOUT BLEACHING.

There are few professional bleachers in the United States. The word "bleaching" implies the art of extracting vegetable or animal matter or discoloration from the various fibres which constitute all our different fabrics. This is done by a regular chemical process, consisting, first, of alkaline boilings; second, immersions in solutions of chloride of lime; third, solutions of acids. After each process the goods receive a thorough rinsing in clear water; then, last of all processes, to thoroughly extract all injurious matter, comes that of boiling in good soap and water. This leaves the goods pure and white as snow, ready to finish for the market. Now the question arises: Can those fabrics again absorb and fix all their natural discoloration? We answer no; impossible. Then why is it (asks the housewife) my clothes become yellow and discolored? There are many reasons—poor soap, hard water, careless servants, not having strength to rub out the dirt yourselves, and not being able to use water by hand hot enough to keep the fabric expanded to the extent which is absolutely requisite to thoroughly extract the dirt or "bleach the clothes." Clothes should never be bleached but once, but thoroughly washed, and they will always be white. THE FAMILY WASHER AND BLEACHER will do it for you every time.

THE INDUCEMENTS WE OFFER.

We want a Local Agent in every town in the United States. We know from experience that reliable, energetic men can make money selling the Washer and Bleacher in any community.

We want first-class men as GENERAL AGENTS; men capable of managing one or more counties.

To such men we give a duly executed LICENSE.

We furnish descriptive circulars for distribution among families. Also large posters for advertising in public places.

The retail price of NO. 1 WASHER is $3.50; NO. 2 WASHER, $5; NO. 3, OR POWER WASHER, $50, Special terms to agents for No. 3 Washer.

TERMS TO GENERAL AGENTS.

No. 1, $24 per dozen; No. 2, $36 per dozen.

SAMPLE WASHERS.

In States east of the Missouri and Mississippi Rivers, also in Kansas and Nebraska, we will deliver at your nearest railway express office, CHARGES PREPAID: Sample No. 1 Washer, $3.50; Sample No. 2 Washer, $5. We will deliver, prepaid, a No. 1 Washer in Dakota, at Bismarck or Yankton, for $3.50; in Wyoming, at Cheyenne, for $3.50; in Idaho, at Franklin City, for $4.50; in Colorado, at Denver or Pueblo, for $4; in New Mexico, at Santa Fe, for $5; in Arizona, at Prescott, for $8.50; in Utah, at Ogden, for $4; in Nevada, at Virginia City, for $5; in Louisiana, at New Orleans, for $3.50; in Arkansas, at Little Rock, for $3.50; in Texas, at Corsicana, for $4.50; at Texarkana, Denison, or Sherman, for $3.50. For the Pacific coast, we will deliver No. 1 at San Francisco, Sacramento, Marysville, or San Jose, for $4. Our reason for so doing is to induce people to investigate this matter, feeling assured that a trial will secure an agent for us.

The great saving in time, labor, and material, and the extremely low price of the Washer, bring it within the reach of all. It can not get out of order. It does the work rapidly and well. These points commend it to every one. Send for a sample; try it; show it to your friends; get their orders, and if you wish to secure a county or town, don't delay, but let us hear from you at once. Remember the old maxim: "First come first served."

In territory where there are no Agencies established, to persons desiring a Washer for their own use, we will deliver the same, CHARGES PREPAID, on receipt of price as stated above. You can readily determine when there is an Agency established, as posters will be put up in conspicuous places, and circulars distributed.

SPECIAL NOTICE.

As to the reliability of this Company, we refer you to the editor of this paper. Also to the MERCANTILE NATIONAL BANK of this City, or to any Express Company in New York.

In ordering, write plainly your name, post-office, County, and State. Also the name of the express office to which you wish the Washer forwarded.

Cash must accompany all orders. Remit by post-office order or registered letter, at our risk. We insure the safe delivery of all washers ordered as above. Money may also be sent by draft on New York.

**Address** **BISSELL M'FG. CO. 50 Barclay St. New York.**

AT ALL TIMES WHEN YOU ORDER OR WRITE, MENTION THIS PAPER.

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**The St. Louis, Iron Mt. & S. Railway.**

**GOOD AND CHEAP LANDS.**

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in a **fine** climate, on short lines of transportation to great markets, and in a country with **organized society,** and all things improving, see the statements in the *American Agriculturist* of November, 1879, page 484. It is a country unsurpassed for the excellence of **all crops** of the temperate zone; in the variety and qualities of its **fruits** and **vegetables;** and in the quantities and qualities of its useful metals and valuable timbers.

It possesses building stone, sands, clays, and ochres. It has **rapid streams** of clear and **wholesome water;** and its growing industries will soon become important. **Forty acres** of good land in this climate, well handled, will produce more profit than eighty acres of similar soil in many other States. It has the highest **record for the best** wheat. But if the acreage of wheat is too great for profit in an overstocked market, or the strength of wheat elements should ever be exhausted, the greatest variety of other products may be grown with success. There is a broad area of live stock range, and sheep are permitted to gain their living during all seasons, but cattle require protected grasses or feeding. The blue grass flourishes. Clover does not heave, but **once set is good for many years.** The farmers here have not suffered from the late hard times, **living** is cheap, and little effort produces competency. Land seekers may reach the country by rail or by the Mississippi and Ohio Rivers cheaply. **These lands have been overlooked** because no one has cared to advertise them. Now all **people** join to improve the country and **welcome settlers.** The Eastern part of Missouri and Arkansas are attractive; as **healthy as the Middle States,** and are not only peacable but also progressing. Location may be made near good people, churches, schools, Temperance and other Societies, and where the mails and city and county newspapers are regular. Send for further information, it will cost nothing; come to see for yourself and your prejudices will be removed, The **United States Government** has some **millions of acres** yet for sale. Individuals overburdened with large tracts desire to dispose of portions of their lands. The St. Louis Iron Mountain and Southern Railway Company offers nearly one and a half millions of acres for sale on easy terms. Address

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**Our Young People,** is entertaining, instructive, and fully illustrated.

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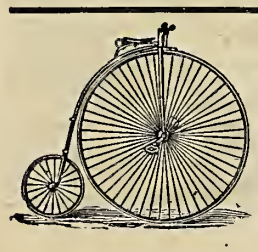

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*The Scientific American says:* **"The Herald of Health contains more sensible articles than any other magazine that comes to our sanctum."**

THE

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**FOR 1880.**

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It will give as its leading articles a series of twelve papers, entitled

## HOW TO HAVE A CLEAR HEAD,

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## Common Mind Troubles.

By GRANVILLE J. MORTIMER, M. D., a famous English writer. Also articles on

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We shall print in the January number a true story from Mr. L P. Hubbard on

## HOW HE SAVED $51,719.99 BY GIVING UP THE TOBACCO HABIT.

It is the most interesting anti-tobacco paper ever written, and will save thousands of boys from this vice.

**Each Number will be worth the yearly price and save ten times its cost in ill health, for it will teach how to KEEP WELL and retain health to old age, rear healthful, happy children, as well as how to recover health without medicines.**

**Price $1.00 Per Year.** Samples 10 cents.

## SPLENDID PREMIUMS.

Every subscriber sending $1.00 and 10 cents for postage, shall receive free our new book of over 200 pages, by Mrs. BERTHA MYER, entitled

## How to Govern Children.

This work is the best book of its kind ever written, and worth its weight in gold to any parent. Price $1.00.

Every subscriber sending $1.50 shall receive THE HERALD OF HEALTH for one year and

## The Complete Works of Shakspeare,

in one volume of over 1,000 pages, good paper and type, and 36 illustrations.

Also just out:

## Hygiene of the Brain and Cure of Nervousness.

**By M. L. HOLBROOK, M. D.**

**"Get this book and read it, for it abounds in practical valuable knowledge."**—*Chicago Inter-Ocean.*

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Address **M. L. HOLBROOK,**
**13 & 15 Laight St., New York.**

*containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.*

Continued from Page 495.

**In justice to the majority of our subscribers, who have been readers for many years, articles and illustrations are seldom repeated, as those who desire information on a particular subject can cheaply obtain one or more of the back numbers containing what is wanted.**

**Back numbers of the "American Agriculturist," containing articles referred to in the "Basket" or elsewhere, can always be supplied and sent post-paid for 15 cts. each, or $1.50 per volume.**

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**Clubs** can at any time be increased by remitting for each addition, the price paid by the original members; or a small club may be made a larger one at reduced rates, thus: One having sent 6 subscribers and $7, may afterwards send 4 names more and $3, making 10 subscribers for $10.00; and so for the various other club rates.

**Terms to New South Wales, New Zealand, Australia, Africa, etc.**—To several inquirers. Under the latest revision of the Postal Union Regulations the price of the *American Agriculturist*, (either English or German edition), including postage *prepaid* through, will be covered by 7 shillings sterling per annum. This applies to the above countries, and to all others embraced in the General Postal Union. The simplest mode of remittance is by Postal Money Orders, payable in London, to the order of Orange Judd Company. These can be readily cashed in N. Y. City at a slight discount, which the publishers will cheerfully pay. For Club rates, (postage included), see our second cover page, and reckon 22 cents to the shilling sterling.

**Spreading Manure in the Winter.**—"J. L. S.," Sullivan, Ind. Manure may be spread on wheat, during the winter, with advantage. It will act as a protection, and when water does not run over the surface, little of it will be lost, but all will be taken into the soil in the spring. It is generally more profitable to manure 10 acres well, than 20 acres only half as well.

**Poultry Disease.**—"A. L.," Morris Co., N. J. A disease, Chicken Cholera, so-called, has been very prevalent and fatal for a year or two past, over widely extended localities. The fowls void a yellow or green matter, appear dull, and eat only sparingly at first; they then lie apart, and after a few days die; the excrement is liquid and frothy, and bright green or yellow from first to last. The cause is undoubtedly bilious disorder, with inflammation of the liver and bowels; an intestinal, or typhoid fever in fact. There are many remedies proposed, but so far as is known, no cure. Whole flocks die off one after the other. The disease is certainly infectious, as one strange fowl has brought it into a previously healthy flock.

**Holding back the Milk.**—"V. S. R.," La. There is no known certain way to make a cow give down her milk, when the calf is taken away. It is better to prevent the trouble, by taking away the calf before it has sucked, milking the cow, and feeding the calf. The calf may be kept either near the cow, or quite out of her sight and hearing; the latter is perhaps the better plan.

**Bloody Milk.**—"W. S. W.," Kent Co., Md. The milk may be found mixed with blood, without any distinct attack of Garget. Garget consists of inflammation, and congestion of the udder, or part of it, and is accompanied by constitutional disturbance, generally fever. But the milk may be tinged with blood from other causes. Violent jerking of the udder, by racing about, a blow, cold in the organ, or other similar accidents may cause it, and with some heavy milkers, which are subject to it occasionally, the cause seems to be over excitement of the secretory apparatus of the udder. Generally a cooling purgative, or a saline diuretic, (such, for instance, as 8 oz. of Salts, or 4 drams of Saltpetre), or both together, with rest, and frequent, careful, and gentle milking, will effect a cure, when the latter is the cause. For Garget, similar, but more active treatment is needed.

**A County Society** may often do more useful work than a large one. For example, the Burlington County, N. J., Agricultural Society offered premiums for and appointed a committee on Farms, Farm Buildings, Crops, and Reclaimed Lands. The premiums were not large, but the information gathered by the Committee in their visits to the farms, etc., entered for competition, was of great value. When we say that our friend William Parry was chairman of the committee, it will be known that there was thoroughness in the work. The report not only gives the awards made, but why they were made; thus making it instructive and useful. Work like this is more profitably done by a County than a State Society, and the example of the Burlington Society is commended to others that have not already adopted this feature.

**A Carriage Makers' Magazine.**—A friend in Kansas City writes to know if there is a journal devoted to carriage painting. We do not know of one that solely occupies itself with the painting of carriages only, but "The Hub" of this City (323 Pearl st.) with all branches of carriage making, has very full departments on carriage painting, varnishing and finishing generally. This affords us an opportunity of saying, what we have long thought, of all the Journals devoted to a specialty, there is none that comes to this office that seems to be more complete in its way, or more beautiful in its dress than "The Hub".

**Setting Hens.**—"Nav.," Haddonfield, N. J., writes: I think I have found a new way of breaking setting hens. When I find one on her nest at night, I remove her gently to a small out-house, with no window in it, but leave a small crack at the door for light and air. There I keep her without food or drink until the next afternoon, when I let her out to drink, and for food. If she goes on her nest again, I subject her to the same treatment. This kind of discipline will almost invariably break her if repeated three times, and very often twice will be sufficient.

**The International Dairy Fair.**—The second exhibition of the "International Dairy Fair Association" will be held in the capacious hall of the American Institute, New York City, beginning on Monday, Dec. 8, and will continue for two weeks. The Machinery Hall—a part of the building not occupied at the last Dairy Fair—will be devoted to the manufacture of butter and cheese, the testing of implements, the raising of cream, etc., etc. The Premium List indicates a great advance in the number and amount of the prizes offered, and an improvement in their distribution through the different classes. The experience at the last Fair will no doubt lead to the avoidance of some mistakes which were perhaps inseparable from an entirely new enterprise.

**Not for Notes.**—Mr. Buckmaster gives some of his experience with the farmers of Scotland in the "North British Agriculturist." The other day a farmer was giving him the results of his observations, and Mr. B. took out his note-book to write them down, when the farmer at once remarked, "I'm no speakin' for't to be a note o'." —Mr. B. replied, "Why, that is the very thing for which most people do speak."—The Scotchman quietly answered, "Well, I dunna, bit gin ye pit by yer book I'll tell yer ony thing ye want to ken."—No doubt the farmer remembered Burns' "A chiel's amang ye takin' notes, And, faith, he'll prent it," and was afraid of getting into "prent."

**Bicycles and Bicycling.**—Those who saw the "Mechanic's Magazine," (England) of well nigh half a century ago, can remember the remarkable machines for locomoting—the velocipedes, there figured. In wonderful contrast with those cumbrous three and four-wheeled affairs, are those figured in its successor, the "English Mechanic," of the present day. The machines are no longer "velocipedes," but *Bicycles*, and their structure is discussed with the minutest detail. Some 20 years ago or so, the Bicycle was introduced into this country; there was a "Bicycle fever," many, especially professional men, had the fever, and it seemed as if the Bicycle would supersede the old-fashioned mode of locomotion, first introduced by Adam. All at once the fever subsided, and not a Bicycle was to be seen, except perhaps in country towns, where the news that they were no longer "in fashion" had not reached. But whatever the fashions, a thing that really has elements of usefulness does not die out altogether. The Bicycle, which all this while retained more or less of its popularity in England, has, within a few years, again come to the front in this country, as shown by the numerous designs we see offered for sale, and by the appearance of a literature of the subject. Among other publications, one has come to us called the "American Bicycle," by Charles E. Pratt, and is issued by the "Pope Manufacturing Co.," of Boston. Unlike many such publications, this is not a mere catalogue, but a very interesting treatise. After giving the history of velocipedes, and the growth of the Bicycle from them, it has full descriptions of the different styles of the Bicycle, and an account of all its parts in detail, discussing in full the "Mechanics of the Machine." Beginners are taught how to ride, and also where to ride, as numerous routes are marked out, and their peculiarities explained. Rules for the formation and management of clubs are given, and also for the conduct of meets and races. A full list of the Literature of the Bicycle, and a copious index, make this one of the most complete little hand-books it has been our fortune to meet.

**Holiday Presents.**—The stores and show windows begin to put on their holiday dress, and anxious thousands are waiting for the day when they shall "go to town." What shall we get for this one and that one? is the hard question to settle. For a neighbor, or relative, there is nothing more acceptable than to say, or send word, that you have ordered the *American Agriculturist* sent to his address for one year. As each number arrives it will be to him a reminder of your kindness.

**The Coming Census of 1880.**—The law requires that the Tenth Census shall be taken during the month of June, 1880. This will divide the crops of the year, so that some will be those of 1879, while others which come early in the season will be of the census year. The cotton crop reported will be that of 1879; the wool clip will be of 1880. "In view of the requirements of the law, and of the great importance of accurate statistical information relative to agriculture, it is deemed to be highly desirable that farmers should prepare themselves in advance to give the information with promptness and accuracy." For such products as butter, milk, cheese, etc., where there is no harvest, the yield of the twelve months, June 1, 1879, to May 31, 1880, is taken. There is sometimes a foolish prejudice against the census taker, and it often happens that his questions are evaded. Sensible people know that the census taker is for the time an officer of the United States, and that he is acting under a Law of Congress, and will prepare to give their answers quickly and accurately. Opposition can only come from the ignorant, and these should know that there is a penalty for resistance to the Laws of their Country.

**Rubber Boots** are of so much importance to all who have to work out in the wet, that they should be found in every farmer's home. But they should be worn only when it is wet. Leather is best in dry weather.

**About Ailantus Wood.**—We are asked if it is durable, and will it sustain strains? Experiments have shown that it will sustain a third more weight than elm, and almost double that required to break the European oak. The wood is not only strong, but durable, and the tree is a rapid grower on poor soil, and in exposed situations. The wood is of value for furniture and cabinet work, as it takes a fine polish, and is not given to warping, and shrinking, when once thoroughly "seasoned."

**American Horses in Europe.**—The business of exporting horses, so successfully begun in this country, fortunately meets with favor in England. The following remarks from the "English Live Stock Journal," may be both interesting and instructive, as pointing out a needed improvement in our stock of horses, and one which has frequently been enjoined by the *American Agriculturist*. Our horses are too light for much of the English heavy work. In England, tools, and vehicles are heavy, and clumsy, and require heavy animals to move them. English riders, too, are in general more corpulent than Americans, and a saddle horse needed for that country, must have stout limbs, strong back, and shoulders; points which have been neglected in the breeding of our trotting or road horses. Our road horses are unexcelled. Our English contemporary has the following to say on this question: "Of late a considerable trade has been done in importing horses from the United States and Canada. The North Metropolitan Tram-ways [this is the name given in England to all horse railroads] imported more than a thousand. They were full of quality, with fair, and in some specimens fine action. There were pairs well worth $750 to a dealer, but they have not weight enough for tram-work, and are being superseded by the French horse of the class so largely used for the last five years by the London Omnibus Company. Unless the recent fall in prices stops the trade, the United States will send us a great many high-class horses—of the sort Yorkshire used to breed. In the States they have plenty of mares of the right stamp for hunters, hacks, and harness; they have thoroughbred sires to keep up quality; they have boundless pastures of good grass and maize at a very cheap rate. On the other hand, they have no idea of the proper make, shape, and action of a riding horse, or of breaking for saddle. All their horse talent has been directed to producing fast trotting harness horses, these they understand perfectly. But they are the quickest people in the world to learn a new trade if it pays. They will learn to pick out mares and sires with riding shoulders and strong backs, thighs, and hocks. Their horses have size, quality, good temper, and sound constitutions to start with. With these advantages the Americans will soon fill up the blank in horse stock created by the competition of beef and mutton in Yorkshire and in Ireland."

**North Carolina for Immigrants.**—If we were to publish all the articles sent us, showing the reasons why each writer's locality is the best in the country for one looking for a new home, we might fill the paper. In former years we gave a few such articles, but found that each one called out 20 or more from others near by, showing that while Smith County may be tolerable, Jones County was a perfect paradise. We were obliged, to keep at peace with all, to refuse the publication of all. But when, as in the case of North Carolina, the claims of a whole State are presented, it is a different matter. We have on more than one occasion shown the advanced position taken by North Carolina in establishing a Department of Agriculture, with a Commissioner, an Experiment Station, etc., and we now find a concerted effort made to bring settlers to the State. A circular has been prepared by Mr. Geo. Allen, of Newburn, N. C., whose enterprise in furnishing his customers with copies of the *American Agriculturist*, we have formerly commended. Mr. Allen has now published *fourteen* good reasons why immigrants should come to his State. These reasons show that the healthful climate, the length of the growing season, the cheapness of land, the easy access to Northern and other markets, make North Carolina worthy of careful consideration by those who are seeking homes in Southern localities. Col. L. L. Polk, the State Commissioner of Agriculture, at Raleigh, or Mr. George Allen, Newburn, will either of them furnish applicants the desired information about the State.

**Ice-Houses.**—In answer to the numerous letters on ice-houses and ice gathering, we have prepared an article, which please find on page 502 of this number.

**Celluloid Again.**—"What is Celluloid?" is a question that is frequently asked, and it is not to be wondered at, as so many articles of every-day use are made of it. Celluloid or Artificial Ivory is made of gun cotton; this is common cotton treated with nitric acid, which, while it does not alter its form, completely changes its properties; this is dissolved in a solution of camphor in alcohol. The gun cotton is ground to a pulp and the camphor solution added, stirred, and allowed to stand for a time, when by heat and pressure the liquid portions are removed and the crude celluloid obtained.

## December Exhibition List.

### Dairy Fair.

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|---|---|---|
| International Dairy Ass'n. | New York | Dec. 8-20 |

### Poultry Exhibitions.

| | | |
|---|---|---|
| **MAINE.** | | |
| Oxford Co. Poultry Ass'n | South Paris | Dec. 16-18 |
| **NEW HAMPSHIRE.** | | |
| Mascoma Poultry Ass'n | Lebanon | Dec. 30. |
| **VERMONT.** | | |
| Champlain Valley Poultry Ass'n | Burlington | Dec. 30-Jan. 1 |
| Wide Awake Poultry Club | St. Johnsbury | Dec. 30-Jan. 1 |
| Vermont State Poultry Ass'n | Rutland | Jan. 6- 9 |
| **MASSACHUSETTS.** | | |
| Brocton Fanciers' Club | Brocton | Dec. 23-26 |
| Cent al Mass. Poultry Ass'n | Worcester | Jan. 20-23 |
| Middlesex Poultry Ass'n | Lowell | Dec. 29-Jan. 2 |
| Southern Mass. Poultry ss'n | Fall River | Jan. 13-17 |
| **RHODE ISLAND.** | | |
| Rhode Island Poultry Ass'n | Providence | Feb. 4-11 |
| **CONNECTICUT.** | | |
| Meriden Poultry Club | Meriden | Jan. 6- 8 |
| Southern Conn. Poultry Ass'n | Bridgeport | Dec. 15-19 |
| **NEW YORK.** | | |
| Akron Pet Stock Ass'n | Akron | Dec. 18-20 |
| Cortlan t Co. Ass'n | Cortland | Ja . 20-23 |
| East End Poultry ss'n | Sag Harbor | D e. 17-20 |
| Empire State Poultry Ass'n | Syracuse | Jan 29-Feb. 5 |
| Eastern N. Y. Fanciers' Ass'n | Albany | Jan, 20-27 |
| New Berlin Union | Chena go | Dec. 9-12 |
| **NEW JERSEY.** | | |
| New Je sey State Society | Newark | Dec. 3- 9 |
| **PENNSYLVANIA.** | | |
| Central Poultry Ass'n | Pottsfield | Jan, 6-10 |
| Germantown Pet Stock | Germantown | Dec. 25-26 |
| Huntington Poultry Ass'n | Huntington | Jan. 12-15 |
| Lancaster Poultry Ass'n | Lancaster | Jan. 2- 4 |
| Lehigh Valley Ass'n | Allentown | Dec. 30-Jan. 3 |
| Luzern Pet Stock Ass'n | Wilkesbarre | Dec. 31-Jan. 2 |
| Pottstown Pigeon Club | Pottstown | Dec. 23-26 |
| **OHIO.** | | |
| Cincinnati Pet Stock Ass'n | Cincinnati | Dec. 24-31 |
| **INDIANA.** | | |
| Northern Indiana Poultry Ass'n. | Fort Wayne | Jan. 27-30 |
| State Poultry Ass'n | Indianapolis | Jan. 8-15 |
| Terre Haute Pet Stock A s'n | Terre Haute | Dec. 29 |
| Wabash Valley Ass'n | Lafayette | Dec. 10-17 |
| **ILLINOIS.** | | |
| Champaign Pet Stock Ass'n | Urbana | Dec. 4- 8 |
| Rock River Valley Ass'n | Sterling | Dec. 9-12 |
| Western Poultry Club | Bloomington | Jan. 16-23 |
| **IOWA.** | | |
| Central Poultry Ass'n. | Marshalltown | Dec. 16-18 |
| Council Bluffs District Ass'n | Council Bluffs | Jan. 20-23 |
| Southeastern Iowa Ass'n | Burlington | Dec. 29-31 |
| **WISCONSIN.** | | |
| Rock Co. Pet Stock Ass'n | Beloit | Dec. 22-25 |
| **OREGON.** | | |
| State Po ltry Ass'n | Portland | Dec. 8-12 |
| **CANADA.** | | |
| Montreal Pet Stock Ass'n | Montreal | Feb. 4- 6 |

**A Twin Apple** grew in the orchard of J. D. Jeffers, Princeton, Ill., that seemed to him so striking that he had the fruit photographed. We have seen a number of sneh apples, but an inspection of a copy of the picture, kindly sent us, shows the nnion to be more perfeet in this ease than in any others that have come to our notice.

**American Apples** are being shipped to England in large qnantities, when we have also a short crop ourselves. A barrel of Ribston Pippins recently sold at Covent Garden market for 60 shillings (about $15), at whieh rate they no doubt paid some one handsomely.

**The Ladies' Garden Club,** of whieh we gave an aceonnt in June last, by the husband of one of the members, reports progress. The same outsider writes; The Garden Club of our Street, of which I wrote to you a short acconnt at the beginning of summer, has goue on prosperonsly through the season. They have held meetings every Monday afternoon until frost came, and ever since fortnightly meetings have been held, and the gardens and flower-borders of the members have been the admiration of visitors and passers-by. They take a fair number of horticultural periodicals, the *American Agriculturist* being one, study catalogues diligently, and buy the choicer books nn florieulture, the contents of which they read, mark, and experimentally digest. As far as an outsider can judge the Club is a true snccess. That the interest is not likely to be ephemeral, I infer from the fact that the members are going in freely for hardy perennials, and especially for our ornamental native plants. In some way--I know not how—they have got hold of the catalogue of my yonng friends Woolson & Co., and I find that they really appreciate the choice things which they offer. These little Clubs are really just the thing for a country village.

G. A.

**Good Pressed Beef.**—We commend to our many new hnse-keeping readers the following, whieh has been partly given in former years. Take any fresh lean beef—the eheaper pieces, as the upper part of the leg above the "soup pieces," answers very well; that containing tendons or plenty of gelatine is even preferable, and some of the round steak or any other lean portion may be used with it. Boil closely covered nntil so tender that the meat will fall from the bones. (It is better to keep a closely fitting pan of eold water over the eooking kettle, to condense and cause to fall back the rising steam containing the escaping flavor.) Use only so much water as is needed to prevent burning. Take ont the meat, mix and chop it fine. Put it into a tin pan or other deep dish. Skim off any excess of grease from the eooking liquor, and add to it a tablespoonfnl of Cooper's or other good gelatine for each 3 or 4 lbs of meat. When dissolved ponr it into the chopped meat; put on it a large plate or tin that will fit into the dish, and place upon this 12 to 20 lbs. weight —flat-irons will answer. When eold it is a solid mass, from which thiek or thin slices may be eut, that are marbled in appearance, and are very excellent for sandwieh es, or for a tea or breakfast dish, and it will keep several days even in warm weather if set in a eool place. It is tender, juiey, digestible, nourishing, convenient and ecouomical withal.

**Boiled Corn Beef Is Improved,** if cooked in plenty of water, and when thoroughly tender left until cold in the cooking water. It is then much more moist and jnicy than if taken out hot and the little moisture in it dried out by standing.

**The American Pomological Society.**—Some features attendant upon the meeting in September last, at Rochester, have been severely criticised in some journals. We were cognizant of, and suffered from the matters complained of, but as they did not properly belong to the Society itself, and need not, and should not, occur again, we preferred to say nothing about them, though they were sufficiently annoying to justify some grumbling. The Pomological Society met at Rochester, on the invitation of the Western Horticultural Society. The meeting being held at the same time that the N. Y. Western Agricultural Society held its Fair, the Western Horticultural Society arranged that the fruit exhibition of the Pomological should be held at the Fair grounds, and ample provision was made for showing the specimens brought by the members of the Pomological. This was a grand mistake—an illustration of the Spanish proverb, "When two ride a horse, *one* must ride behind," and that one in this case was the Pomological. Probably none of the thousands of visitors to the N. Y. Western Agricultural Fair not immediately interested, knew that the fine show of fruit was due to the Pomological Society. The Pomological Society's fruit when it entered the fair grounds completely lost its identity. But this was not the worst. Those members of the Pomological Society who brought fruit for hundreds of miles, had not only to pay to see it, but those who had charge of it had to pay to enter and look after their own fruit. Still worse, the members of the Committees appointed by the Pomological Society to report npon the fruit exhibited at its own Exhibition, had to pay in order to enter the grounds and perform their duties, but as some Committees had to inspect the fruit several times, the tax was needlessly onerous. Of eourse, all this, as an impartial observer could see, was not due to any meanness, but to a lack of proper arrangement. Snmebody neglected the details. The matter was so very annoying that some persons were much disgusted, and we do not wonder at the complaints that have appeared. It was a great mistake to exhibit the fruit at the fair grounds, some miles from the meeting, and a greater mistake not to provide for the free entrance of the members of the Pomological. All such troubles may be avoided in the future by having no exhibition of fruit by the Pomnlogical Society, save of new varieties, and they can be shown at the place of meeting. A general exhibition of fruit has always been a souree of more or less trouble at the meetings, and if this accumulation of troubles at Rochester will put an end to all general exhibitions by the Pomological Society, they will not have occurred in vain. All other matters about the Rochester meeting were so well arranged and so pleasant, that we hoped this private grievanee, annoying as it was, would not be made public. But people will grumble.

**Garden and Farm Seeds.**—According tn the accounts given in the papers, the seed erop has not been so poor within the knowledge of the present generation of English seed growers as in the season just elosed. English journals are already cautioniug their readers against the tricks likely to he played by unscrupulous dealers in renovating old seeds to look like new. The kinds of seeds imported by our seedsmen are at present not very numerous. Still there are several that can be raised with so much greater certainty in Great Britain than here that these are always important. Among those reported by the Londnn Seed Association as nearly total failures are: Wrinkled Peas, Cau.iflower, Carrots, Leek, Lettnees, Onions, Mangles, and Scotch Turnips. We are very sure that none of our leading seedsmen would knowingly send out adulterated, dyed, or otherwise doctored seeds, but they need to exercise more than usual care with the few they import. As the stock of such seeds may not be sufficient to supply the demand, it will be well for those who have to purchasc to order early.

**French Vineyards** are in many localities in a bad way, the fruit being unripe long after the usual time for the harvest. What is still worse, the wood has not ripened, and fears are entertained for next year's erop.

**Patent Farm Gates.**—As a supplement to what is said in the Humbug column about patent gates and feuees, and especially abont patent gates, we give below the essential parts of an article which appeared in a Michigan paper, the "Kalamazoo Telegraph." We did not see the "Telegraph," but find its article quoted by the "Vermont Record and Farmer," a sterling sheet, published at Brattleboro, Vt. The article says:

"The suits for the recovery of a royalty on a farm gate extensively used in Michigan and other States of the Northwest, have been settled adversely to the plaintiff, by a decisinn in the United States District Court, at Detroit, this week Monday. The contrivance in question is the plain gate, without hinges, sliding on a stationary cross-piece, or rolling on a roller, till the gate is removed half across the gate-way, and then, being balanced, swinging around as on a pivot. This form of making gates is a great favorite with the community, as it can all be made in a few hours, and can be handled with the greatest convenience. Snits were brought against a large number of farmers in the eastern part of the State, and several thousand dollars were collected in a single county before the defendants could bring about arrangements to protect themselves. The first contest was with a claim under the so-called Lee patent, in which the parties demanding a royalty were defeated. The case just decided by the United States Court at Detroit was brought under the Teal patent. The decision in favor of the parties using the gate was based on the fact that the device was given to the public hy a cut in the *American Agriculturist*, and quite generally used two years before the patent was applied for. Under the United States Patent Laws, no claim would be worth anything under these circumstances, and by contesting it, the farmers of Michigan have saved themselves from being bled thousands of dollars."

The article concludes by saying that the matter was taken up by the State Grange, from the funds of which the expenses of the suit were paid. Good for the Grange! This is not the first time that the engravings in the *American Agriculturist* have done good service in checking fraudulent patent claims.

**Horses in Pasture.**—After this season of the year horses should not be left in the field over night, and we question if it pays to have them running in the fields at all after November in most northern localities.

**A Goat Society** has just been formed in England. Its objects are, to improve the breed of goats, and to encourage goat-keeping generally. Englishmen are nothing if not statistical. "We are informed that the number of goats exhibited at the first dairy show was only 12, whereas there were now 15 being shown"! It does not say so, but that shows the remarkable increase of *three goats!* Statistics should be precise and definite We are left in doubt, not to say suspense; what is the period of time between the "first dairy show" and "now"—was it an increase of one goat in three years, or three goats in one year? But at a dairy show, too—ah, we see, prizes were offered for the best *butt-er*! It was proposed to establish a "standard of excellence." England has been sending over all sorts of commissions to look into our Agricultural resources; let this Society send over one to look up the subject of goats. They would find not mere societies, but in the rural portions of Manhattan Island, *communities* interested in goats. "A standard of excellence" can not be formed without seeing these goats. A chief point must be, ability to live solely upon show-bills and posters. Another should be, that when lunching off of a recently hung-out washing, the animal to infallibly select trimmed skirts and embroidery. Another: ability to upset an ash-barrel. Another: to show fight to a policeman, and never get caught. But we will not anticipate the labors of the committee; when they *go-at* the work they will find exeellenees enough. The late Horace Greeley had a goat on his farm at Chappaqua, which he said "barked everything but the crow-bar," but that was. before there was a Society to improve the breed. This Society, for a wonder, does not call itself "The Royal Agricultural Association," but with commendable modesty it is merely the "British Goat Society." It should be Royal, as it could then bear the Royal arms; putting the Goat in the place of the Lion—then wouldn't there be fun! Capricorn against Unicorn! That historical "fighting for the crown," when "the Lion beat the Unicorn all about the town," would hereafter stand as a mere skirmish.

**American Grain Elevators in Havre.**—It is strange that, up to the present time, the important sea port of Havre (France) has none of the grain elevators in operation that are so common, and we may say neeessary, in American ports and grain eenters, but we learn that, largely through the enterprise of Americans in France, several of our elevators are to be erected in Havre.

**Blanketed Cattle.**—"J. E. S." These cattle are descended from Dutch stock imported into this country a long time ago. Several names have been giving to these cattle as "Belted," "Sheeted," "Draped," etc., all fonnded upon the leading characteristic, namely: a broad band, or belt, of white, passing around the middle of the body while all the rest is black. They are excellent milkers, and are found in considerable nnmbers in Orange county, N. Y., a noted dairy locality; and when seen there in herds. are marked features of the landscape, which even the nnobserving traveller could not fail to notice and admire. In Holland this peculiarly marked breed is preserved with great care. An engraving of a pair of these cattle was given on the first page of the *American Agriculturist* for December, 1877.

**Starting a Nursery.**—"A Subscriber" asks, among other questions, if there is any book that tells how to start a nursery. He sent a stamp for a reply by mail, but as he omitted to sign his name, there is a slight obstacle to our answering in that manner. Barry's "Fruit Garden," gives full directions for all nursery operations, so far as the propagation of fruit-trees, vines, etc., are enncerned. Pears may be grafted upon Thorn for a stock, but the tree in not long lived.

**Dairymen in Clover.**—No other class of producers suffered so severely from low prices during the first half of the year, and we rejoice with them in the fact that no other class—not even the rampant speculator of Wall Street—has enjoyed so great a "boom" in prices, as the producers of Butter and Cheese. Last month we chronicled a very great advance in prices, and now report a further large rise. in butter especially. as witness: Oct. 14, prices ranged 10 to 27 cts. per pound, for various grades; Nov. 14, for the same grades, 16 to 40 cents per pound—an average rise of *fifty per cent!* Good for the producers. As for consumers, they are not compelled to eat more than they can pay for.

**The Illinois State Horticultural Society** will hold its 24th annual meeting at the State Normal University, at Normal, on the 9th, 10th, and 11th of the present month. T J Barrill is President, and O. B. Galusha, Morris, Grundy Co., is Secretary. The "program" (as the announcement has it) provides for three meetings each day, and is varied and interesting. They make a strong feature of the "Query Box," into which persons can drop the most unanswerable conundrums without exposing their ignorance. (We are curious to know how many queries there will be about the Pear Blight.) There is a most commendable feature about the meetings of this and othern Western Societies: they are well organized, and prepared for beforehand, and one ean see by the announcement what entertainment in the way of

reports, discussions, addresses, etc., he may expect. Not only this, hnt some "Committee of Ways and Means" arranges for the "ways" in mneh reduced fares on all the railroads leading to the place of meeting, and for the "means" hy indneing the various hotel keepers to offer the members a large discount from the usual terms.

**That Denver Land Co. Swindle.**—Since page 494 went to press, we have received the particulars noted in Mr. Raymond's telegram. We have only space to add that the said "North Denver City" land was 40 miles north-east of Denver City, 7 miles from the nearest water or nearest house, the ground bare of vegetation, not a tree in sight, no preparations to make it habitable—and the whole affair an unmitigated swindle, as we pronounced it at first sight of the advertisement.

**The American Institute Fair.**—The 48th Annual Exhibition, which has just closed, excelled many of those of former years. It was largely attended by people from all parts of the country, who found in the various departments an abundance to amuse and instruct. Among the most attractive things was a fence-making machine, which turned out a wire and wo[illegible]en slat fence at the rate of a rod a minute. An improved well drilling machine was shown at work boring an Artesian well, with the expectation of finding a supply of water for the building. But we can not go into particulars of a show that is now over, and will come again and again.

**Nuts and other Seeds.**—"Snbscriber," Erie, Pa. Hickory nuts for planting, are best preserved in heaps, which are covered with sods, or straw, upon which earth is placed to the depth of ahout four inches. Chestnuts are to he placed in a box, with an equal hnlk of damp sand, and kept in a cool place; this should be done before they get dry. Apple and pear seeds are also mixed with sand, in a similar manner, and kept nntil spring.

**Forests and Rainfall.**—The opinion is held hy some, that the planting of forests will bring about proper rainfall in all cases; snch an opinion is wrong. The conditions which decide whether a land is to be one favored with abundant rains, or be an arid desert, are heyond the power of vegetation to control. The relation to large bodies of water, monntains, currents of air, and other meteorological factors, determine this. The work of the forest is secondary, hut nevertheless, important in ameliorating extremes of temperature, making the winter warmer, and the summer cooler, holding more of the rain in the leaf mould, which is afterward evaporated, and returns to the atmosphere, thus prodncing clouds, and bringing about refreshing local showers. Forests are of the greatest importance, bnt they should not be expected to hless all lands with abundant rains. There is bnt little hope for the Sahara.

**Bonner's Sale of Horses.**—Robert Bonner sold 87 of his horses on Oct. 29th. The crowd was so great that hut a small proportion of those present could get even a glimpse of the animals, much less make anything like an inspection of them The highest price was paid for Keene Jim, a 6 year-old gelding, which bronght $4,000, hnt most of the animals it is said sold very low—in part owing to the great crowd, which interfered with the sale. The total sales amounted to about $33,000.

**California Grapes.**—The grape growers in California have at last learned what varieties of grapes will transport the best, and to pack them so that they will arrive in excellent condition. By the box they retail for about 20 cents per lb. Still, when one can get thoroughly ripe Catawbas, from Keuka Lake and thereabouts for five cents a pound, one who knows grapes has little temptation to buy any others, however attractive they may be to the eye. There is no grape, native or exotic, to our notion superior to a *thoroughly ripened* Catawba, except the Iona, in the same condition, but that is becoming more and more scarce.

**The Poultry Shows.**—A list of the Exhibitions, devoted wholly, or in part, to the interests of poultry, is published elsewhere. Year by year these fine shows are increasing in nnmbers, interest, and importance, and, coming as they do, when other fairs are past, and the time is not so pressing, they should he well attended by all lovers of fine poultry, beautiful birds, and the smaller domesticated animals known as "Pet Stock."

**Lumber from Straw.**—A recent inventor claims to be able to make hard-wood lumber from common wheat straw. The straw is first made into a pnlp and then into ordinary paste-board. As many of these sheets are taken as required to make the thickness of lumber desired, and then are passed through a chemical solution, the composition of which is not stated, and afterwards the sheets are passed through rollers and the hard lumber, impervious to water, comes ont ready for use.


# Iowa Barb Wire Co., Limited.

**Marshalltown, Iowa.—Johnstown, Pa.—93 John St., New York.**

**Sole Manufacturers of Burnell's [illegible]atent Four-Pointed Steel-Barb Wire Fencing, Galvanized and Painted; s[illegible]ples, Stretchers, Pincers, Wire Cutters, Post-Hole [illegible]ers, Iron Posts, etc.**

**For Sale at all Hardware Stores. Ask to see it.**

**Illustrated Circulars and Samples sent by Mail to any part of the World.**

**Our Wire is put up on spools in lengths of about one hundred rods, weighing from 100 to 110 lbs.**

**One pound measures 15 feet in length; 352 lbs. measures a mile. Our staples run about 80 to the pound. Iron posts, weight, 12 lbs.; stretcher, 12 lbs.**

Having just put up (in addition to our Marshalltown, Iowa, factory,) extensive works at Johnstown, Pa., in the very heart of the Iron and Steel industries of this country, we have facilities for turning out more Barb Wire than any other company in the United States. We manufacture under our own patents issued June 19th, 1877, and are ready, willing, and able to protect all dealers and consumers of our Barb Wire.

Our Wire is all manufactured from fresh ingots of Steel made direct from the ore (we use no scrap or old rail ends), and has a tensile strength of 2,000 pounds to each line of wire; it has a four-pointed barb which passes between the two wires, and then is wound around both, but not so tight as to bind the wires solid together, and destroy the contraction and expansion. Our four-pointed barb has a great advantage over those cut from solid metal: in that style, the twisting of the wire hard like a rope injures the strength, greatly increases the weight, and is liable, especially in cold weather, to break and untwist, allowing the barbs to fall out; of course, no two-pointed wire can at all compare with a four-pointed, particularly the kind where the barb is twisted around only one wire.

In regard to the construction of our Barb Wire Fencing, to counteract the effects of our severe climate, we claim to have, after much experimenting, found out the best manner of twisting wire together. When our wire is expanded by heat the twist simply loosens, and when contracted by cold tightens, all without altering the relative length of the combined wires. When we remember that a length of 100 feet of steel wire, in a cold winter day, is one inch shorter than in a hot summer day, we can readily understand how it is that so many single wire, and tight twisted double wire, fences, break, or pull the posts down in cold weather.

The saving in land surface in putting up the *Barb Fence* is a matter of great importance. For instance, the old-fashioned zigzag or worm fence takes from every hundred acres an area of five acres, and this strip of land is worse than wasted, as it becomes a jungle of noxious weeds and harbor for all kinds of animals and vermin that prey upon the crops. Of course the same waste of land and objections apply to a stone fence, and much more to a live or hedge fence, which usually occupies a strip of land ten to fifteen feet wide, exhausting the soil on either side; this mode of fencing is rapidly declining in this and foreign countries.

It is the cheapest fence made; the most durable; is not affected by fire, wind, or flood; does not cause snow-drifts; takes fewer fence posts; stock can not push it down; it protects itself—acts on the defensive; it takes but little room; you can cultivate close to it; weeds are easily kept ont of it; requires bnt little labor to put it up; you can draw at one load enough to fence a farm; and can fence a good-sized farm in a day; it is the greatest practical invention of the age, and has come to be the farm and railroad fence of the country.

**One Thousand Pounds of our Wire will make over**

## A MILE

**of Fence of three Lines..**

**A Good substantial Fence for Farms or Railroads can be put up for less than 50 cents a rod, including posts.**

We ask the readers of this Paper to examine the cuts of the different **Barb Wires**, as illustrated by the Editors on another page, and judge for themselves which is the best. (Ours is **No. 14.**)



The Regular Paid Circulation of the

# WEEKLY WORLD

**Is Double the Circulation of any Weekly Newspaper published in New York, as the following table abundantly proves.**

| | | | | | |
|---|---|---|---|---|---|
| NEW YORK | 30,247 | OREGON | 373 | INDIANA | 4,387 |
| NEW JERSEY | 3,157 | WASHINGTON TER. | 286 | KANSAS | 2,174 |
| OHIO | 6,425 | MONTANA | 82 | KENTUCKY | 3,921 |
| PENNSYLVANIA | 7,573 | WYOMING | 61 | MISSOURI | 4,368 |
| VIRGINIA | 3,473 | IDAHO | 39 | NEBRASKA | 767 |
| ILLINOIS | 5,367 | ARIZONA | 45 | NEW MEXICO | 72 |
| WEST VIRGINIA | 2,653 | UTAH | 75 | MICHIGAN | 2,657 |
| DELAWARE | 281 | NEVADA | 46 | INDIAN TERRITORY | 86 |
| MARYLAND | 1,183 | NORTH CAROLINA | 4,705 | MAINE | 1,229 |
| WISCONSIN | 2,306 | GEORGIA | 2,856 | NEW HAMPSHIRE | 1,242 |
| MINNESOTA | 2,077 | SOUTH CAROLINA | 1,315 | VERMONT | 1,756 |
| IOWA | 2,409 | ALABAMA | 4,799 | MASSACHUSETTS | 2,411 |
| CALIFORNIA | 636 | FLORIDA | 707 | RHODE ISLAND | 356 |
| MISSISSIPPI | 3,636 | ARKANSAS | 2,698 | CONNECTICUT | 2,224 |
| LOUISIANA | 2,441 | COLORADO | 338 | CANADA | 314 |
| TEXAS | 3,834 | DAKOTA | 90 | MISCELLANEOUS | 360 |
| TENNESSEE | 3,154 | | | | |

**Total, - - - - - - - - - - - 127,721**

**It has the Largest Circulation among Farmers of any Weekly Newspaper.**

**IT PAYS TO ADVERTISE IN THE WEEKLY WORLD—TRY IT!**

Address THE WORLD, New York.

**RIDGE'S FOOD for INFANTS AND INVALIDS**

Is the most reliable food in the world; it produces bone, muscle, brain, teeth, &c., and in every way preserves and develops the growing child.

**FELT CARPETINGS** 20 to 45 cts. per yard. **FELT CEILING** for rooms in place of Plaster. **FELT ROOFING** and **SIDING.** For circular and Sample address C. J. FAY Camden, N. Jersey

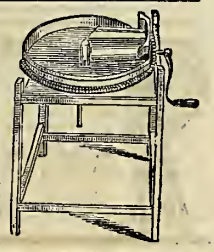
Rectangular and Square **BOX CHURNS**

**Cheapest and Best.** No inside fixtures, and *always reliable.* Six sizes of each kind made. Three sizes of the *Lever* Butter Worker made. Best material used, and every Churn and Butter Worker *warranted* exactly as represented. One Churn at wholesale where we have no agent. *Send Postal for Circulars.*

**CORNISH & CURTIS, Fort Atkinson, Wis.**

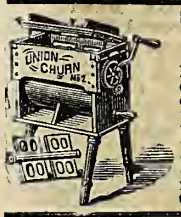
**LILLY'S PATENT**

**BUTTER-WORKER**



Received the **First Premium** from the Pennsylvania State Agricultural Society last September, and is acknowledged to be the only self-feeding and reliable Machine in the market. Send for circular, giving the names of the Ladies and Gentlemen who acted as Judges at the late State Fair.

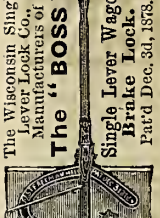
**C. H. R. TRIEBELS, 316 Race St., Phila., Pa.**




**SOLD AT GOLD PRICES!**
The Original Improved
**UNION CHURN.**

Introduced 14 years ago, and the acknowledged standard churn of the country. Easily operated and easily cleaned, making beautiful butter by the extra working of the dasher on the butter while churning. Our Union Churn has been awarded the first prize over all competitors at twelve different State Fairs. Every Churn warranted. Address TIFFIN UNION CHURN CO., Tiffin, Ohio.

The Wisconsin Single Lever Lock Co., Manufacturers of **The "BOSS"** Single Lever Wagon Brake Lock. Pat'd Dec. 31, 1878.



**To Manufacturers of and Dealers in Wagons.**

We invite your attention to the new Single Lever Wagon Brake Lock, which is far superior to any lock now made. It is simple, neat, strong, durable and cheaper than any other lock in the market. Manufacturers of Wagons furnish "The Boss" on Wagons when ordered by dealers. Send for Sample. Try it and satisfy yourself.

For price and terms address

**The Wisconsin Single Lever Lock Co., Racine, Wisconsin.**

**MARCY'S OIL AND GAS SCIOPTICONS**

With New Improved and Carefully Selected

**MAGIC LANTERN SLIDES,**

L. J. MARCY, 1340 Chestnut St., Philadelphia. For convenience and efficiency, for private or for public use, *they stand*

**UNRIVALLED.**

Circulars free. Catalogues, 10 cents. Sciopticon Manual, 6th Ed., 75 cents. Splendid Outfits at Bottom Prices.

**MAGIC LANTERNS AND STEREOPTICONS**

For PUBLIC, SUNDAY-SCHOOL & HOME EXHIBITIONS.

120-PAGE CATALOGUE FREE

VIEWS ILLUSTRATING ALL SUBJECTS

**C. T. MILLIGAN.**

728 CHESTNUT ST. PHILADA.

☞ **FRIENDS!** If you are in any way interested in

**BEES OR HONEY,**

We will with pleasure send you a sample copy of our **MONTHLY GLEANINGS IN BEE CULTURE,** with a descriptive price-list of the latest improvements in **Hives, Honey Extractors, Artificial Comb, Section Honey Boxes,** all books and journals, and everything pertaining to Bee Culture. *Nothing Patented.* Simply send your address on a postal card, *written plainly,* to

**A. I. ROOT, Medina, Ohio.**

**E. & O. WARD, PRODUCE COMMISSION MERCHANTS.**

(ESTABLISHED 1845.)

Send for Circular of Great Value, giving full instructions for shipping

**POULTRY, GAME, BUTTER, and PRODUCE.**

**No. 279 Washington St., N. Y.**

Ref., *Irving National Bank,* New York City.

**Ready about December 1st.**

**THE WONDERFUL**

**CHRISTMAS HOLIDAY NUMBER**

**OF ST. NICHOLAS.**

**The largest and most beautiful issue of any magazine for girls and boys ever published, containing more than One hundred pages and ninety-five pictures.**

The continued success of ST. NICHOLAS in English-speaking countries, as well as the high compliment paid to its conductors by the recently-accepted offer of a Paris publisher of a French edition (the first number of which will be issued in Paris in time for the Holidays), has authorized a permanent increase in the size of the magazine and the enlargement of the regular editions. The publishers have prepared a Christmas number for 1879, which will surpass in variety and richness of contents, and beauty of illustration, the previous efforts of any publisher of children's literature, and will emphasize the fact, already well-known, that ST. NICHOLAS is in every respect the leading child-magazine of the world. This number will contain

**TWELVE SHORT STORIES**

**by J. T. Trowbridge, Washington Gladden, J. W. De Forest, John Esten Cooke, Maurice Thompson, Sarah Winter Kellogg,**

and others; also the first chapters of a

**SERIAL STORY BY LOUISA M. ALCOTT,**

written in the author's best vein, and the second installment of a

**CAPITAL SERIAL FOR THE BOYS,**

by WILLIAM O. STODDARD, to run some months. (A long story, also for boys, by NOAH BROOKS, author of "The Boy Emigrants," will begin soon.)

**JOHN GREENLEAF WHITTIER**

contributes a long poem, while LUCY LARCOM, MARY MAPES DODGE and PALMER COX are also represented in verse. There is

**A CHRISTMAS PLAY FOR FESTIVALS,**

by EDWARD EGGLESTON, who has written several taking stage-pieces for young people; an illustrated art-paper on THORVALDSEN, and an account, with twelve pictures, of the life and doings of New York Telegraph Boys.

GUSTAVE DORE, KNAUS, MARY HALLOCK FOOTE, KELLY, DIELMAN, BENSELL, SHEPPARD, EYTINGE, JESSIE CURTIS and ADDIE LEDYARD are among the artists whose labor has helped to make beautiful this number of

**"THE WORLD'S CHILD-MAGAZINE."**

For sale by book and news-dealers. Price $3.00 a year; 25 cents a number.

**SCRIBNER & CO., New York.**

The publishers would call attention to the

**Games by the Editor of St. Nicholas,**

which they have recently issued in new and elegant styles for the coming Holidays. It is thought that the "Protean Cards" and the "Stratford Game" will be among the most popular gifts of the season. They are now ready and for sale everywhere.

**SCRIBNER & CO., New York.**

**REAL GOOD WHITE SHIRTS**

**For 50 Cents.**

White, French yoke, linen shield-shaped bosoms, all ready to wash and wear, $6.00 per doz., $3 per ½ doz., by express. One or more samples by mail, post-paid, for 60 cts. each. **NEWARK SHIRT CO.,** Send for circular. **Newark, N. J.**

**H.C.L.D.** Warranted the best Leather Dressing made. For all leather needing any dressing.—Agents: A. Chadwick, Kansas City, Mo. L. A. Martz, Evansville, Ind.

☞ Ask reliable dealers for it, or address my Agents or

**A. D. STRONG, Manufacturer, Ashtabula, Ohio.**

**FIRST EDITION, 103,000.**

The DECEMBER SCRIBNER is now ready, and so rapidly are orders increasing that it is thought the first edition will not supply the demand. One cause of the recent increase in circulation, shown by the fact that there were

**100,000 November Numbers Sold in Two Weeks.**

is undoubtedly due to the growing interest in the two serials, Henry James, Jr.'s **"Confidence,"** which is one of the most fascinating character studies, and George W. Cable's

**NOVEL OF NEW ORLEANS LIFE,**

**"The Grandissimes."** This latter, begun in November, will be the leading serial story of the year. Mr. Cable's "Old Creole Days" has attracted wide attention, and this, his first novel, promises to be among the strongest and most important works of fiction that have yet appeared in American literature. The special attractions of the December number include

**TWENTY POEMS BY AMERICAN WOMEN,**

all written for this magazine, and including verse by many of our most prominent women writers. Among the other literary features are an account of **"Two Visits to Victor Hugo,"** by H. H. Boyesen, with a large portrait engraved by Cole; the continuation of Stedman's critical estimate of Bayard Taylor's poetry, an illustrated description of the **John Hopkins University,** and an interesting paper by Burroughs on **"Nature and the Poets."**

**THE NEW CAPITOL AT ALBANY**

is critically described in an article of eighteen pages, with the aid of twenty-three drawings, giving, it is thought, the first completely illustrated description of this building, which the author calls "the most monumental and most honorable work of public architecture which this country has to show for itself."

**COFFEE CULTURE IN BRAZIL**

describes from personal observation an industry of world-wide interest; and the second of E. P. Roe's papers, **"Success with Small Fruits,"** tells about "Strawberries for home and market." Both these are profusely illustrated, the latter with drawings by Gibson, Kappes, and Riordan.

**"THE REIGN OF PETER THE GREAT,"**

By EUGENE SCHUYLER, will begin in the February number. The illustrations for the first of this splendid series of HISTORICAL PAPERS are now almost completed, and include reproductions of famous Russian paintings, cut on the wood by American engravers who are pronounced by the *London Saturday Review* "the best in the world."

All that enterprise and skill can do will be done to maintain the position of SCRIBNER as the leading popular periodical of America.

Sold, and subscriptions received, by booksellers and news-dealers, at $4.00 a year, 35 cents a number.

**SCRIBNER & CO., New York.**

The demand is so constant for fine proofs of the choicest illustrations which have appeared in SCRIBNER'S MONTHLY and ST. NICHOLAS, that the publishers have prepared at great expense

**A PORTFOLIO OF PROOF IMPRESSIONS**

of the best engravings from the pages of their magazines. The edition is limited to one thousand copies, and orders may be sent in to dealers or to the publishers at once, to be filled on the issue of the PORTFOLIO, about Dec. 1st. Price $10.00.

See December SCRIBNER for extended notices.

**SCRIBNER & CO., New York.**

**THOSE** wishing to sell, purchase, or exchange property with the view of emigration, are invited to address A. F. COQUILLARD, South Bend, Ind.

**52 CARDS** with Name—Snowflake, Royal, Diamond, Rosette, Marble, &c., 10 cts.; in case, 12 cts. NOVELTY CARD CO., Wallingford, Conn.

**20** New Styles Chromo Cards, 10c., or 25 New Styles Mixed, 10c., post-paid. J. B. HUSTED, Nassau, N. Y.

**50** CHROMO, SNOWFLAKE, AND LACE CARDS, with name, 10c. 40 all chromos, 10c. STAR PRINTING CO., Northford, Ct.

**52 PERFUMED CARDS,** Gold, Motto, Snowflake, Lace, Lily, &c., with name 10 cts. POSTMASTER, Higganum, Ct.

**62** Gold, Crystal, Lace, Perfumed, and Chromo Cards, name in Gold and Jet, 10c. CLINTON BROS., Clintonville, Ct.

**L. E. RANSOM,** 34 MAIDEN LANE, N. Y. CITY, Importer of **Annatto** and **Dairy Coloring.**

WELLS, RICHARDSON & CO'S
**PERFECTED BUTTER COLOR**
**Gives Butter the gilt-edge color the year round.** The largest Butter Buyers recommend its use. Thousands of Dairymen say **IT IS PERFECT.** Ask your druggist or merchant for it; or write to ask what it is, what it costs, who uses it, where to get it. **WELLS, RICHARDSON & CO., Proprietors, Burlington, Vt.**

# Hay Cutters & Corn Shellers.

**Two invaluable articles, superior to any in the market, at lowest prices. Send for circular and prices.** A. B. CORU, 197 Water Street, New York.

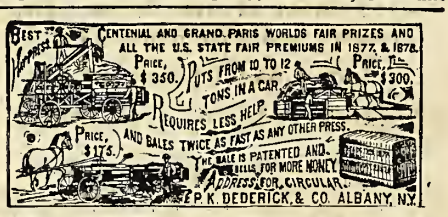
# BOWKER'S AMMONIATED FOOD FOR FLOWERS.

Odorless, clean, gives healthy growth, and abundant flowers. Trial packages by mail, postage paid, 20c. and 35 cents. Sufficient for 20 plants for 3 or 12 months; containing also a little book, "How to Cultivate House Plants," by Prof. Maynard, of the Mass. Agricultural College. AGENTS WANTED.
**BOWKER FERTILIZER CO., Boston or New York.**

## What Farmers Want.

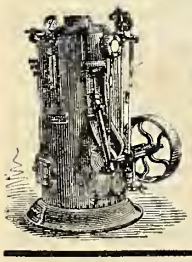
They want Pure Ground Bone! Why—because it contains those elements taken from the soil in the grain and carried away, thus impoverishing the land. Pure Premium Bone, made of dry, hard, unsteamed bones, supplies just this waste, as every farmer can learn by practical experience at a trifling cost. Send for a full explanation of how it works.
**Excelsior Fertilizer Co., Salem, Ohio.**

## THE CHAMPION
# REAPERS & MOWERS.
**AWARDED THE HIGHEST HONORS**
everywhere, by the best expert Authority, after the most thorough tests as to its capacity and execution.
**Manufactured by Whiteley, Fassler & Kelly, The Champion Machine Company, and Warder, Mitchell & Co., Springfield, O.; and The Toronto Reaper & Mower Company, Toronto, Canada.**



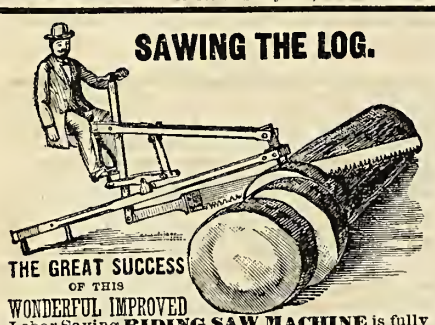

**THE MISSING LINK SUPPLIED.**

**INGALLS'**
## Patent Link, Clevis, etc.
Will mend and make your chains without tools. Inquire of your hardware stores, or send to
INGALLS' MFG CO., Providence, R. I.



## Bookwalter Engine.
Compact, Substantial, Economical, and Easily managed. Guaranteed to work well and give full power claimed. Engine and Boiler complete, including Governor, Pump, &c., (and boxing), at the low price of
3 Horse-Power... $215.00
4½ " " ... 245.00
6½ " " ... 315.00
Put on Cars at Springfield, Ohio.
**JAMES LEFFEL & CO., Springfield, Ohio,**
or 109 Liberty St., New York City.

## SAWING THE LOG.




WONDERFUL IMPROVED Labor Saving **RIDING SAW MACHINE** is fully demonstrated by the number in use and the present demand for them. It saws Logs of any size. **One man** can saw **more** logs or cord wood in one day and **easier** than two men can the old way. It will saw a two foot log in three minutes. **Every Farmer needs one.** Township agents wanted. Send for Illustrated Circular and Terms.
**Address W. W. BOSTWICK & CO., 178 Elm St., Cincinnati, O.**

# FARM GRIST MILLS AND CORN SHELLERS.
**Over 25,000 Now in Use.**
Every Machine is guaranteed to give satisfaction, or no pay. Price of Mills, $12; Shellers, $5. Every farmer should have them. Send for illustrated circulars and terms to agents. Address
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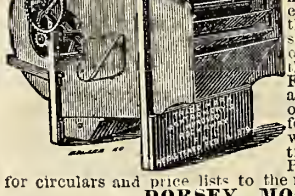

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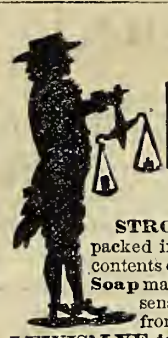

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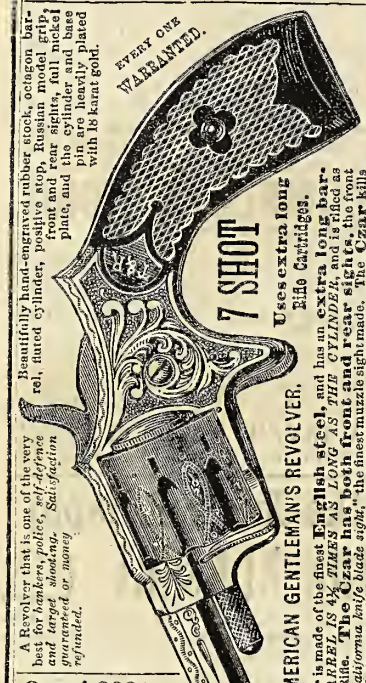


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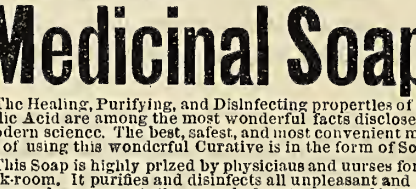

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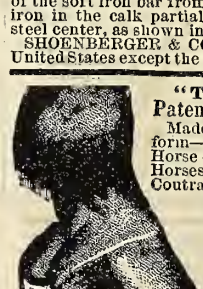

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# Winter Greeneries AT HOME.

By REV. E. A. JOHNSON, D.D.,
*Author of "Half-Hour Studies of Life," etc., etc.*

*NOTICES BY THE PRESS.*

The many who have admired its plant embowered windows and vine-covered walls as they have passed the modest residence of the author of this little treatise, in Allegheny City, will at once concede his pre-eminent fitness to give instruction in the care of plants in the house. The contents of the volume were originally embodied in a series of letters to a number of his young friends, and they proved of so great service to them, that they urged their publication. The information is imparted in an engaging style, and is of a simple and practical sort.

*The United Presbyterian* (Pittsburg, Pa.)

"Winter Greeneries at Home" is a very neat little work by Rev. Dr. Johnson, of Allegheny, Pa., devoted to Window Gardening, and largely the fruit of the author's successful experience in thus beautifying his own residence. The culture of flowers in an ordinary dwelling requires a loving care, and perhaps a native tact, not always purchaseable with the best and most practical of books, but such volumes are calculated to develop these qualities where they have hitherto been latent, as well as to supply the place of much tedious experience, and obviate the dangers of many trying failures on the part of others. *Country Gentleman*, (Albany.

In writing this volume, Dr. Johnson has told the secret of beautifying our homes in winter time. If one were to enter his study he would find there an illustration of success in this art. The knowledge is communicated in a fine and familiar way that brings teacher and pupil into sympathy with each other, and makes the study a delight.

*Congregationalist and Boston Recorder.*

The book itself is a little beauty, containing over one hundred pages of letter press, with quite a number of illustrative engravings, and can be had post-paid, from the publishers for one dollar, and for those who want to get all the practicabilities of the subject in the shortest time and with the least labor, it will prove a treasure indeed.

*St. Paul and Minneapolis Pioneer Press.*

People who are desirous of beautifying their homes, will find the little book on Window Gardening, by E. A. Johnson, specially useful and suggestive. It tells what plants to select, how to plant and take care of them, and how to arrange them in the most artistic ways for effect. The illustrations show how a few properly arranged plants at a window may be made to adorn a room, giving it a delightful summer aspect through the winter months.

*Commercial Advertiser* (Buffalo)

It is a complete manual of Window Gardening, containing full directions for the propagation and care of house plants. To those who desire the luxury of winter-blooming plants, this book will be of the first importance. *Indiana Farmer.*

"Winter Greeneries at Home," by Edwin A. Johnson, D.D., is a little book on Winter Gardening, designed to meet the need of ordinary, unprofessional cultivators of flowers and plants for the house. It gives about all the information needed for successful Window Gardening.

*New York Evening Post.*

It contains, in a small compass, a great deal of information respecting the treatment of in-door plants during the winter months, based on the experience of years.

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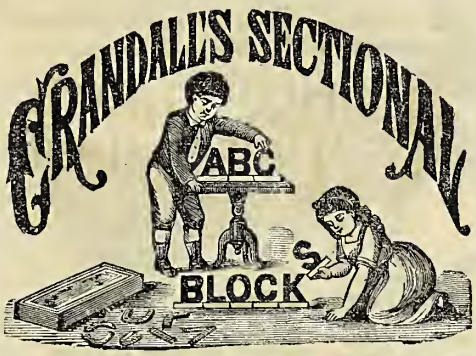


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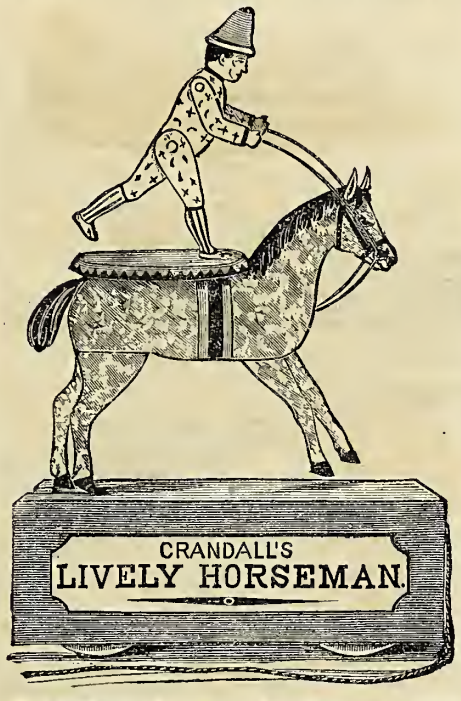


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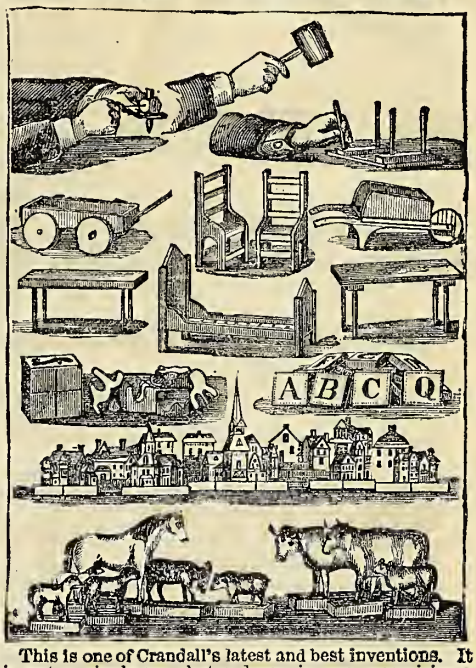


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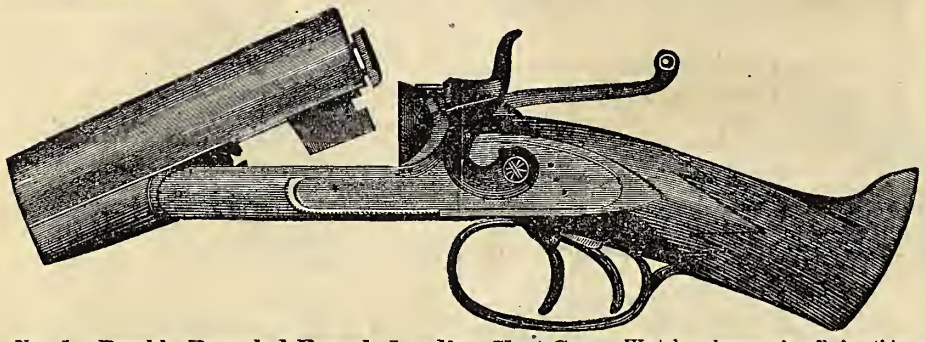

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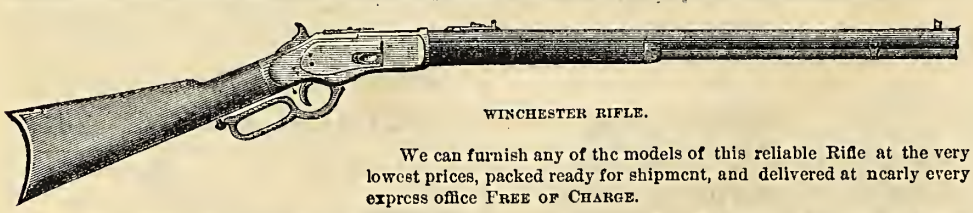

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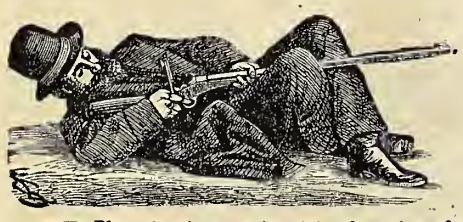

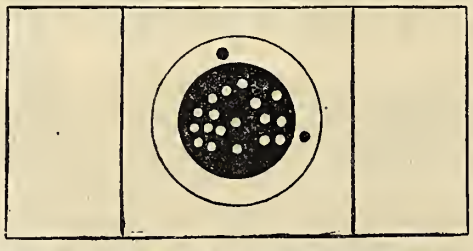

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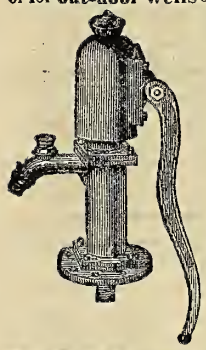

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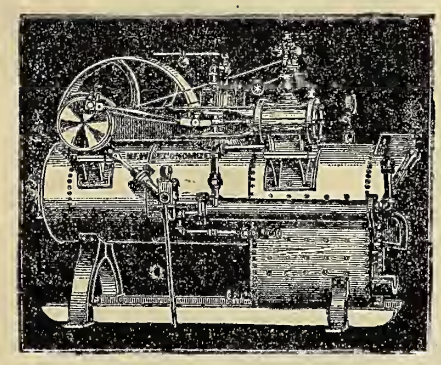

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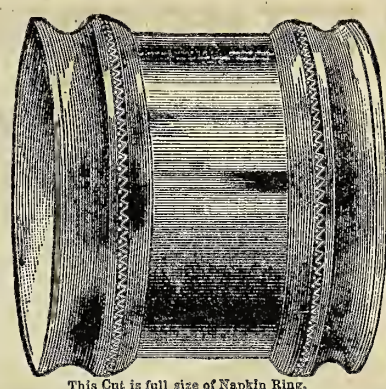

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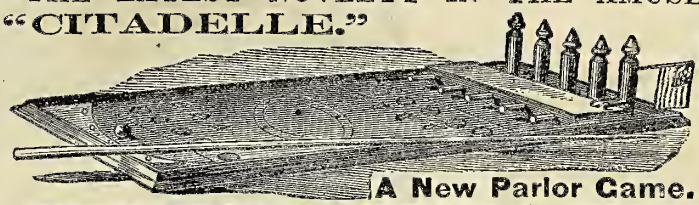

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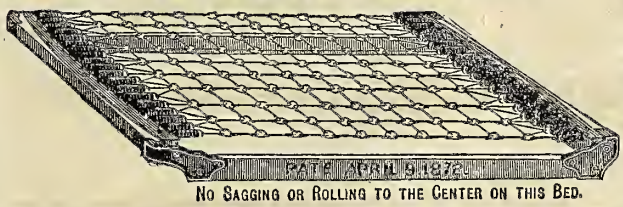


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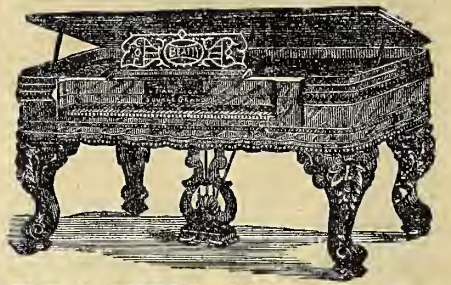

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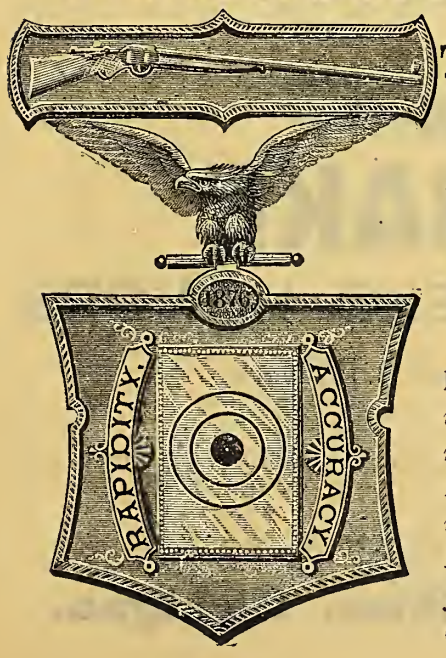


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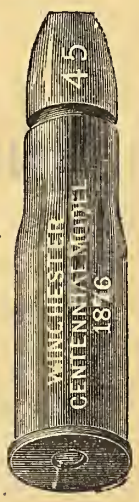


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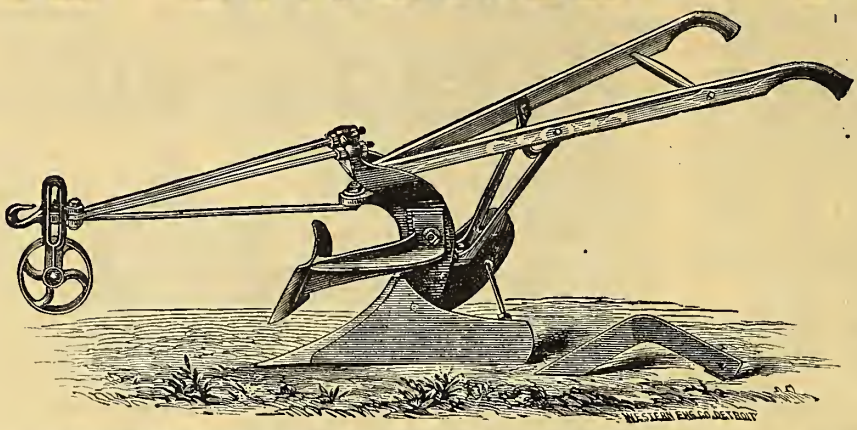

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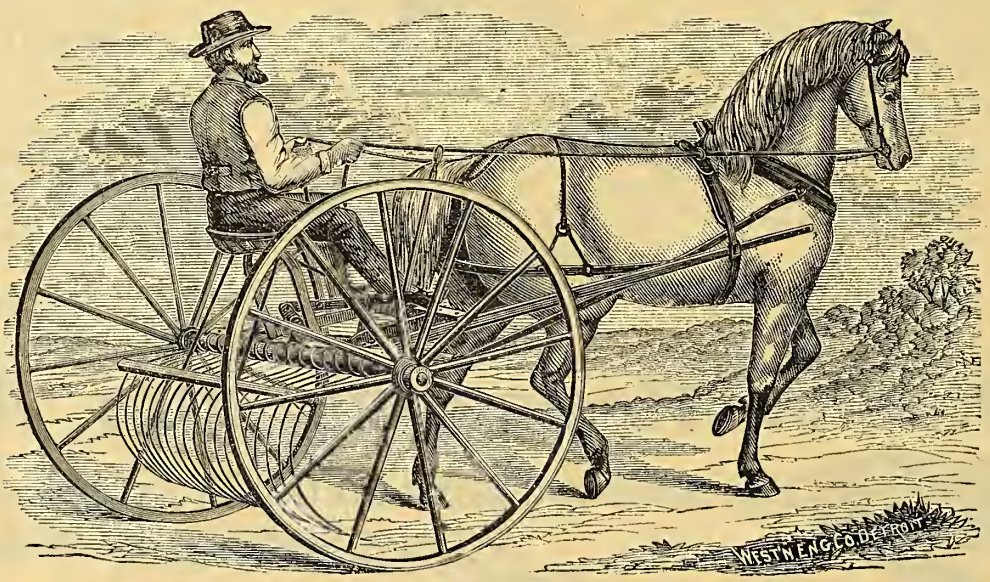

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